U.S ARMY FIELD ARTILLERY CENTER AND FORT SILL

ANNUAL COMMAND HISTORY

(RCS CHIS-6 [R4])

1 JANUARY 2001 THROUGH 31 DECEMBER 2001

BY

COMMAND HISTORIAN'S OFFICE

JUNE 2002

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COMMANDER'S INTRODUCTION

This Annual Command History for 2001 captures key mission support activities, training and leader development initiatives, and combat development accomplishments for the U.S. Army Field Artillery Center and Fort Sill.

The year's defining event was the unanticipated terrorist attack on the World Trade Center and the Pentagon on 11 September. This national tragedy changed Fort Sill's operational climate by shifting its focus to unprecedented levels of force protection.

While soldiers and civilians worked around the clock to ensure local safety and security, the Field Artillery and Fort Sill continued to transform and prosper. In support of the U.S. Army's continued transformation, the Field Artillery has continued to lead the way in futures development and integration. Advances in the development of the Crusader 155-mm. Self-propelled Howitzer, the High Mobility Artillery Rocket System (HIMARS), and the Lightweight 155-mm. Towed Howitzer promise responsive fire support capabilities that address the continued demand for a broad range of fires across the full spectrum of operating environments. In addition to emerging weapons systems, field artillery munitions, such as the Guided MLRS (GMLRS) and the Excalibur Unitary, assure unparalleled precision fires in the near future.

This year, Field Artillery training and leadership initiatives focused on producing and maintaining adaptive leaders. The recent realignment of the Field Artillery School streamlined academic operations that continue to provide Field Artillery leaders with consistent, world-class training and instruction. Programs of Instruction for Officer and Noncommissioned Officer courses continue to transform in an effort to better prepare leaders to perform the tasks and duties expected of them in the operational forces. The Field Artillery School is leveraging its available instructional technologies by offering distance learning and real-time, online information, as an integral facet of the Fires Training XXI Strategy.

Around the world, Redleg soldiers are the pride of the Nation's forces. At home, Field Artillery units continue to train to unprecedented levels of high-quality performance -- preparing for whatever opportunities and challenges await in the coming years. Now more than ever, the Caissons are indeed rolling along.

MICHAEL D. MAPLES
Major General, USA
Commanding

PREFACE

The 2001 Annual Command History for the U.S. Army Field Artillery Center and Fort Sill follows the decision-making process as closely as possible. Through email, messages, staff reports, fact sheets, correspondence, briefings, and other documentation, the Command Historian's Office has recreated as closely as possible how the Center and Training Command made key decisions concerning training, leader development, doctrine, force design, equipment requirements, and mission support.

Because the Center and Training Command were involved in many diverse activities during the year, the Command Historian's Office under the direction of the Commanding General selected only those activities deemed to be the most historically significant to include in the History.

Preserving historical documents forms a vital part of the historian's work. After they are collected from the various Center and Training Command organizations during the process of researching, they are filed in the historical records and documents collection in the Command Historian's Office. All documents are available for use by Center and Training Command staff, other U.S. governmental agencies, and private individuals upon request.

Because new documents are often found after research and writing are completed, this contemporary history is subject to revision. As new documents are discovered, interpretations and conclusions will change. Comments and suggested changes should be directed to the Command Historian's Office.

In the process of researching and writing the History, the historian becomes indebted to many people for their advice and assistance. The Command Historian's Office would like to thank the people who provided their technical expertise. Without their help writing the history would have been far more difficult.

BOYD L. DASTRUP, Ph.D.
Command Historian
U.S. Army Field Artillery Center
and School

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MISSION

Influenced by the new field artillery technology introduced after the Spanish-American War of 1898, the development of indirect fire, and inadequately trained Field Artillerymen, the War Department opened the School of Fire for Field Artillery at Fort Sill, Oklahoma, in 1911. War Department General Orders No. 72, dated 3 June 1911, directed the school to furnish practical and theoretical field artillery training to lieutenants, captains, field grade officers, militia officers, and noncommissioned

officers.[1]

Composed of the U.S. Army Field Artillery School (USAFAS), the U.S. Army Field Artillery Training Center (USAFATC), and the Noncommissioned Officers Academy (NCOA), Fort Sill's Training Command continued the tradition established by the School of Fire by preparing leaders, soldiers, and U.S. Marines to be the best in providing fire support. Through resident and distance learning, Training Command trained Army and Marine Corps officers and enlisted personnel in the tactics, techniques, and procedures to employ fire support systems in support of the maneuver arms in a wide variety of operating environments. Training Command also helped to develop and refine doctrine and helped to design units for the Interim Force and experienced a significant reorganization to keep abreast of the Transformation of the Army.[2]

ORGANIZATION

New Commanding General of the U.S. Army Field Artillery Center and Fort Sill

[1]War Department, General Order No. 72, 3 Jun 1911, Doc I-1, 1997 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH); Wilbur S. Nye Carbine and Lance: The Story of Old Fort Sill (Norman, OK: University of Oklahoma Press, reprinted 1974), pp. 320-29.

[2]"Silhouettes of Steel," Field Artillery, Nov-Dec 00, p. 32, Doc I-1, 2000 U.S. Army Field Artillery Center and Fort Sill Annual Command History.

On 23 August 2001 Major General Michael D. Maples succeeded Major General Toney Stricklin as the Commanding General of the U.S. Army Field Artillery Center and Fort Sill (USAFACFS). General Maples graduated from the United States Military Academy in 1971 and was commissioned a second lieutenant in the Field Artillery. His military education included the Field Artillery Officer Basic Course, the Field Artillery Officer Advance Course, the U.S. Army Command and General Staff College, and the National War College. He commanded the 41st Field Artillery Brigade, Babenhausen, Germany; the 6th Battalion, 27th Field Artillery at Fort Sill, Oklahoma; and B Battery, 6th Battalion, 37th Field Artillery in Korea. General Maples served at Headquarters, Department of the Army as the Director of the Operations Readiness and Mobilization and the Director of Military Support in the Office of the Deputy Chief of Staff for Operations and Plans prior to taking command at Fort Sill. His decorations included the Defense Superior Service Award, the Legion of Merit with two Oak Leaf Clusters, the Bronze Star Medal, the Meritorious Service Medal with three Oak Leaf Clusters, the Army Commendation Medal with Oak Leaf Cluster, and the Army Achievement Medal. His foreign decorations included the French Croix du Guerre with Silver Star.[3]

New Deputy Commanding General for Training/Assistant Commandant of the U.S. Army Field Artillery School

On 11 October 2001 Brigadier General William F. Engel passed his responsibilities of the Deputy Commanding General for Training/Assistant Commandant of the U.S. Army Field Artillery School to Brigadier General David C. Ralston. Following his graduation from Weber State College, Ogden, Utah, in 1975, General Ralston graduated from the Field Artillery Officer Basic Course. He attended the U.S. Army Command and General Staff College and served as an Army War College Fellowship at Harvard University. Following command of the Division Artillery, 1st Cavalry Division, Fort Hood, Texas, he became the Chief of Staff, U.S. Army Field Artillery Center and Fort Sill. In March 2001 General Ralston assumed duties as the Assistant Chief of Staff for Operations, Kosovo Force. His awards included the Defense Meritorious Service Medal with two Oak Leaf

[3]Official Biography, Major General Michael D. Maples, Doc I-1; "Maples New Commanding General," Fort Sill Cannoneer, 30 Aug 01, p. 1a, Doc I-1a.

Clusters, the Army Meritorious Service Medal with four Oak Leaf Clusters, the Joint Service Commendation Medal, the Army Commendation Medal with Oak Leaf Cluster, and the Kosovo Campaign Medal.[4]

Transformation of Fort Sill's Training Command

[4]Official Biography, Brigadier General David C. Ralston, Doc I-1aa; "Assistant Commandants Change," Field Artillery, Nov-Dec 01, p. 36, Doc I-2.

Given a tasking by the Chief of Staff of the Army, General Eric K. Shinseki, to restructure the U.S. Army Training and Doctrine Command (TRADOC), the Commanding General of TRADOC, General John N. Abrams, set out to redesign his command beginning in 1999.[5] Besides initiating action to cut infrastructure, the General envisioned consolidating training throughout TRADOC in the near future into four centers: a maneuver center at a site to be determined; a maneuver support center at Fort Leonard Wood, Missouri; a maneuver sustainment center at Fort Lee, Virginia; and a maneuver command and control center at Fort Leavenworth, Kansas. As a part of this endeavor, he wanted to restructure TRADOC's service schools by creating an interim model and subsequently replacing it with the objective model. Consolidating training and restructuring individual service schools would eliminate redundancies throughout TRADOC, would reestablish a standard organizational framework for service schools, would reduce the span of control for school commandants, and would free soldiers for duty in operational commands, among other benefits.[6]

For Fort Sill, General Abram's interim school model meant significantly redesigning Training Command that included the Field Artillery Training Center (FATC), the Noncommissioned Officer Academy (NCOA), the Field Artillery School (FAS), and the 30th Field Artillery Regiment as a totally new organization and involved significant challenges and changes. General Abram's interim school model provided for a school commandant; a quality assurance office; a personal staff for the commandant; a chief of staff; a proponency office; a Futures Development and Integration Center (FDIC) for research, development, and other similar activities; a Branch Technical/Tactical Training Directorate, also called a Branch School, for basic branch instruction; and a Leader Training Center for advanced branch instruction. Upon implementation the interim school model would eliminate many Fort Sill training organizations as they existed in 2000-2001, including Training Command, the Gunnery Department, the Fire Support and Combined Arms Operations Department

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[5]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 1-2.

[6]Ibid., p. 2.

(FSCAOD), the Noncommissioned Officer Academy, the Field Artillery Training Center, the Warfighting Integration and Development Directorate (WIDD), the Directorate of Combat Developments (DCD), the Depth and Simultaneous Attack Battle Laboratory, and other critical Training Command organizations by merging them into the FDIC, the Branch School, or the Leader Training Center.[7]

[7]Ibid., p. 3.

Upon receiving the assignment to reorganize, Fort Sill outlined its plan of action late in 2000 and early in 2001. At the end of 2000, Fort Sill's interim school model, which was implemented in the fall of 2001, included a school commandant with a personal staff, a quality assurance office, a chief of staff, a proponency office, and a deputy commanding general for training that oversaw the FDIC, the branch school, and the leader training center.[8]

[8]Ibid., pp. 3-4; Email msg with atch, subj: Training Command Organizational Chart, 9 Jan 02, Doc I-3; Email msg, subj: School Reorganization, 24 Jan 02, Doc I-4.

To meet its own unique situation, Fort Sill devised its own proposals for the FDIC, the Branch School (Branch Technical/Tactical Training Directorate), and the Leader Training Center. As delineated late in 2000 and early 2001, TRADOC's FDIC model had ten major divisions and performed fifteen major functions. In contrast, Fort Sill's projected FDIC would conduct the same basic functions but would have fifteen divisions. This meant retaining some organizations that the TRADOC model did not support, such as Task Force 2000 that would be renamed Task Force XXI and that would continue working with future concepts and the Depth and Simultaneous Attack Battle Laboratory. FDIC would focus its attention on combat developments, equipment design, training developments, doctrinal development, and force structure. In the meantime, the TRADOC Branch School model would have a support brigade, an initial entry training brigade, and a school brigade for basic professional military education and functional military education. Although Fort Sill's proposed Branch School would have the same basic functions, it outlined a slightly different organization. It planned to retain FATC for initial entry training and the 30th Field Artillery Regiment for basic professional and functional military education and placed support functions under the FATC and 30th Field Artillery Regiment. As of 5 January 2001, Fort Sill's proposed Leader Training Center included the 2-2nd Field Artillery for support; the 1-30th Field Artillery Regiment/Gunnery Department for basic training for officers, warrant officers, and noncommissioned officers; the 3-30th Field Artillery/FSCAOD for advanced training for officers, warrant officers, and noncommissioned officers; and a Headquarters and Headquarters Battery, 30th Field Artillery Regiment for administrative support. Eventually, the 1-30th Field Artillery would handle all basic training for officers, warrant officers, and noncommissioned officers, while the 3-30th Field Artillery would handle advanced training for officers, warrant officers, and noncommissioned officers. For example, the Primary Leadership Development Course and the Basic Noncommissioned Officer Course would be in the 1-30th Field Artillery, and the Advanced Noncommissioned Officer Course would be in the 3-30th Field Artillery. As the Deputy Assistant Commandant for Training and

Organization, Colonel Theodore J. Janosko, explained early in 2001, this organization was subject to change.[9]

Later in 2001, Fort Sill made some minor modifications to the existing battalion and department alignments to minimize disruption to the existing school organization and to follow the TRADOC branch school model more closely. The installation retained FATC and NCOA separate from the 30th Field Artillery Regiment. It placed FSCAOD, the Captains Career Course, the Warrant Officer Basic Course, and the Warrant Officer Advance Course in 1-30th Field Artillery Regiment and assigned the Gunnery Department, the Officer Basic Course, and the Basic Officer Leadership Course to 3-30th Field Artillery Regiment. Scheduled for implementation early in 2002, these changes maintained the fundamental relationships of the previous school organization where the Gunnery Department had proponency for the Officer Basic Course and FSCAOD had responsibility for the Field Artillery Captains Career Course and warrant officer courses.[10]

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[9]2000 USAFACFS ACH, pp. 4-5.

[10]Interview with atch, Dastrup with Fred R. Rowzee, Operations Officer, Gunnery Department, 16 Jan 02, Doc I-5.

In the meantime, Fort Sill formed FDIC on 1 October 2001. Of the three major proposed organizations (FDIC, the Branch School, and the Leader Training Center), the FDIC involved the most far-reaching restructuring. The FDIC had three major subdivisions: the Requirements Determination, Developments Integration (RDDI) Directorate with responsibilities for combat developments; the Information Technology and Production Services Division with the mission of multimedia training development; and the Depth and Simultaneous Attack Battle Laboratory. Fort Sill also attached the U.S. Army Training and Doctrine (TRADOC) System Managers to FDIC as a functional relationship and not as a command relationship. In the eyes of Harold Gardner, the Deputy Director of the old Directorate of Combat Developments that was merged under the FDIC, the new FDIC's most significant contribution would focus on merging the materiel developers from the old Directorate of Combat Developments and the training and doctrine developers from the old Warfighting Integration and Development Directorate into one organization where they could coordinate their activities better than they had done in the past.[11]

Another critical element of restructuring Training Command involved ensuring quality training. On 26 January 2001 General Abrams directed his Deputy Chief of Staff for Training (DCST) to establish an organization by 1 October 2001 to accredit initial entry training (IET), institutional leader development training for officers and noncommissioned officers, and the Combat Training Centers. As the organization stood in mid-2001, the Deputy Commanding General for IET/Commander of Army Accessions Command would have oversight of IET accreditation. The Commander of the Combined Arms Center would accredit institutional leader development training for officers, warrant officers, and noncommissioned officers and would also accredit the Combat Training Centers. To carry out their accreditation responsibilities, the Deputy Commanding General for IET and the Commander of the Combined Arms School would dispatch a team to examine the training being

[11]Fact Sheet, subj: FDIC, 10 Jan 02, Doc I-6; Email with atch, subj: Training Command Organizational Chart, 9 Jan 02; "Futures Development Integrated with FDIC," Fort Sill Cannoneer, 1 Mar 01, p. 1a, Doc I-7; Email msg with atch, subj: Transformation of Training Command for Annual Command History, 19 Feb 02, Doc I-8.

conducted at a given institution, to report its findings, and to make recommendations about the level of accreditation -- candidate for accreditation, provisional accreditation, or full accreditation.[12]

The creation of the Fort Sill Quality Assurance Office on 1 October 2001 played a significant role in the effort to ensure effective and efficient training. Responsible to the Deputy Commanding General for Training at Fort Sill, the Fort Sill Quality Assurance Office would conduct internal and external evaluations, conduct accreditation self-assessments, and accredit reserve component Total Army School System school battalions. Basically, the Office had the authority to examine everything that involved training.[13]

MISSION SUPPORT

The Budget

[12]Staffing Paper with atchs, subj: Accreditation of IET, Ldr Dev, and CTC Program, 15 Jan 02, Doc I-9; Briefing, subj: Quality Assurance Pilot, 6 Feb 02, Doc I-10; Interview, Dastrup with Dr. P. Robertson, Dir, QA Office, 8 Feb 02, Doc I-11.

[13]Briefing, subj: Quality Assurance Pilot, 6 Feb 02; Interview, Dastrup with Robertson, 8 Feb 02.

In 2001 Fort Sill simultaneously executed the Fiscal Year (FY) 2001 budget and developed one for FY 2002. Fort Sill acknowledged that FY 2001 funding guidance from the U.S. Army Training and Doctrine Command (TRADOC) had helped it to prepare the budget. However, in formulating the FY 2001 budget, the installation still faced a challenging year because it had $16 million less than it had in the previous year ($115,915K closeout budget for FY 2000).[14] In a memorandum on 29 December 2000 written just after Congress had signed the Defense Appropriation Bill for FY 2001, the Commanding General of Fort Sill, Major General Toney Stricklin, wrote TRADOC about the impact of this reduction that came on the heels of years of successive of budget cuts. "After many years of BASOPS [base operations] reductions, the level of risk has increased to the point where I fear we will soon have a catastrophic failure in a boiler or roof that will jeopardize the well being of our soldiers and civilians," he told TRADOC.[15] Such conditions also influenced training. General Stricklin mentioned in his memorandum:

> We have one major project that has direct impact on our training mission. . . . Burleson Hall is scheduled to support the new fielding of AFATDS [Advanced Field Artillery Tactical Data System] and 13D (automated fire support specialist) digital training. Burleson Hall requires the

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[14]Email msg, subj: Budget for Annual Command History, 15 Mar 02, Doc I-12; Email msg with atch, subj: Budget for Annual Command History, 15 Mar 02, Doc I-13.

[15]Memorandum for Cdr, TRADOC, subj: Cdr's Statement - FY01 Appropriation TRADOC Budget Guidance, 29 Dec 00, Doc I-14.

> renovation of 16 classrooms and electrical outlets[,] . . . a [new] roof . . . to avoid water leaks damaging the equipment, and an HVAC [heating, ventilating, and air conditioning system].[16]

[16] Ibid.

From the General's perspective, renovating Burleson Hall was critical to meet the AFATDS fielding initiative and reflected the close relationship between base operations and training and the influence that the former had on the latter. In this particular instance, the inability to maintain Burleson Hall could have a detrimental impact on training.[17]

General Stricklin also acknowledged other critical funding challenges for FY 2001 and hoped for supplemental funding from TRADOC. With the current budget Fort Sill could not pay its utility bills beyond May 2001 unless it mortgaged its fourth quarter civilian payroll and would have difficulties furnishing essential garrison operations and normal routine maintenance.[18] The installation also would lack sufficient funding in FY 2001 for physical security for force protection. This would leave the post vulnerable to crime, restrict the ability to detect terrorist activity, and severely limit the ability to secure the installation and to implement other vital

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[17]Ibid.; Email msg with atch, subj: 2001 Budget for Annual Command History, 5 Mar 02, Doc I-15.

[18]Email msg with atch, subj: 2001 Budget for Annual Command History, 5 Mar 02; Email msg with atch, subj: Commander's Statement, 16 Jan 01, Doc I-16.

security measures. Unfortunately, the terrorist attacks on the World Trade Center, New York City, and the Pentagon, Washington, D.C., on 11 September 2001 reaffirmed the need for physical security.[19]

[19]Ibid.

As anticipated by General Stricklin and other Fort Sill leaders, the appropriated budget for FY 2001, the inability to obtain additional funding from TRADOC, and the escalating utility bills forced the installation to initiate funding constraints in March 2001. To stay within funding levels, Fort Sill imposed restrictions on temporary duty travel, encouraged the maximum use of teleconferencing, and video-conferencing, and reduced expenditures on office supplies, among other things. Of equal importance, the installation implemented a civilian hiring freeze, only filled those civilian positions that influenced the protection of life, health, and safety, and eliminated overtime with a few exceptions.[20] Fort Sill even considered making other reductions, such as stopping the Officer Basic Course Redleg War, eliminating field training and live fire in the Basic Noncommissioned Officer Course, discontinuing all observe fire shoots in the Officer Basic Course, and furloughing civilians. Fortunately, Congress passed a supplemental funding bill in the summer of 2001 to relieve some but not all of the funding pressures and later enacted a special appropriation to pay for part of the force protection requirements as a result of the terrorist attacks on 11 September 2001.[21]

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[20]Memorandum for CG, USAFACFS, subj: Exceptions to TRADOC Civilian Hire Freeze, Decision Paper, 2 Mar 01, Doc I-17; Email msg, subj: 2001 Budget for Annual Command History, 5 Mar 02, Doc I-18; Email msg, subj: Questions on Sill Interpretation of Funding Constraint Guidance, 28 Feb 01, Doc I-19; Email msg, subj: FY01 Funding Restrictions, 28 Feb 01, Doc I-20; Email msg with atch, subj: FY01 Funding Restrictions/Constraint, 23 Mar 01, Doc I-21; Email msg, subj: FY01 Funding Restrictions/Constraints, 27 Mar 01, Doc I-22; Email msg, subj: Funding Constraints, 26 Feb 01, Doc I-23; Email msg with atch, subj: FY01 Funding Constrain for April, 14 May 01, Doc I-24; Email msg with atch, subj: Budget for Annual Command History, 15 Mar 02.

[21]Email msg, subj: Annual Command History, 5 Mar 02, Doc I-25; Briefing, subj: Fort Sill's FY01 Funding Assessment Relook, 13 Mar 01, Doc I-26; Briefing, subj: Fort Sill's FY01 and FY02 Funding Assessment, 8 May 01, Doc I-27; Memorandum for Cdr, TRADOC, subj: FY01 Funding Restriction Impacts, 9 Mar 01, Doc I-28.

Meanwhile, Fort Sill had to prepare for the next fiscal year as it was working on FY 2001 issues. FY 2002, however, started out as an abnormal fiscal year. Normally, TRADOC furnished budget guidance for the coming fiscal year in May or June of the current fiscal year, but it did not give guidance for FY 2002 until October 2001. The inauguration of a new president and the bottoms-up review initiated by the Secretary of Defense delayed the Department of the Army's guidance to the major commands, which in turn slowed down guidance to Fort Sill. When it did furnish guidance for FY 2002, TRADOC directed Fort Sill and its other installations to support force protection and contingency operations fully; to support the command's core competencies of training soldiers, developing leaders, accessing and maintaining the force, and operating their installation; to support the Transformation of the Army and the Transformation of TRADOC; and to pursue and leverage the best business practices aggressively. At the same time TRADOC told Fort Sill to provide a "cannot do" list of mission or program requirements in its installation contract that had been deferred or could not be accomplished within available funding and to rank them as

low risk, medium risk, or high risk.[22]

[22]Email msg with atch, subj: Budget for Annual Command History, 15 Mar 02; Interview, Dastrup with Barbara Milam, DRM, 8 Mar 02, Doc I-29; Email msg with atch, subj: Annual Command History, 5 Mar 02, Doc I-30; Memorandum for See Distribution, subj: FY02 TRADOC Budget Guidance, undated, Doc I-31; Email msg, subj: Annual Command History, 5 Mar 02, Doc I-32; Memorandum for See Distribution, subj: FY02 TRADOC Budget Guidance, 26 Oct 01, Doc I-33.

Although the funding of $130 million for FY 2002 was about $2 million more than FY 2001 final budget, Fort Sill still had critical concerns. In its installation contract the post prioritized its "cannot-do" list as directed.[23] The installation could not refurbish and maintain its ranges to support training, could not conduct programmed driver training for the Bradley Fire Support Team (BFIST) Operator Course or the BFIST Commander Course in accordance with the program of instruction, could not upgrade the Enhanced Protocol Interface Unit that supported all digital training, could not provide adequate force protection that was on the forefront of everyone's mind in light of the terrorist attacks of 11 September 2001, and could not pay its utilities, among other things. Looking at the level of funding for FY 2002, the Commanding General of Fort Sill, Major General Michael D. Maples, who had replaced General Stricklin in August 2001, explained that the installation needed additional money for the above issues and others.

[23]Memorandum for Cdr, TRADOC, subj: Commander's Statement - FY02 TRADOC Budget Guidance, 19 Nov 01, Doc I-34.

Otherwise, the post would have difficulties training soldiers.[24]

Base Realignment and Closure 1995 and Fort Chaffee, Arkansas

[24]Email msg with atch, subj: Budget for Annual Command History, 15 Mar 02; Briefing, subj: FY02 Budget Guidance, 15 Nov 01, Doc I-35; Memorandum for Cdr, TRADOC, subj: Commander's Statement - FY02 TRADOC Budget Guidance, 19 Nov 01; FY02 TRADOC Budget Guidance, 19 Nov 01, pp. 1-18, Doc I-36.

Outside of moving the Joint Readiness Training Center (JRTC) from Fort Chaffee, Arkansas, to Fort Polk, Louisiana, as a result of the Base Realignment and Closure (BRAC) of 1991, the BRAC process had little influence upon Fort Sill, Oklahoma. The 1995 BRAC, however, made a significant impact. In July 1995 the BRAC commission advised closing Fort Chaffee, Arkansas, a sub-installation of Fort Sill, as an active component (AC) facility. Upon approval of President William J. Clinton on 15 July 1995, the 1995 BRAC recommendations became Public Law 101-510 on 28 September 1995. Based upon the law, the Commanding General of Fort Sill had to close Fort Chaffee except for the minimum essential ranges, facilities, and training areas required for a reserve component (RC) training enclave for individual and annual training and had to dispose of excess properties to the private sector. Effective 30 September 1997, the installation would be closed as an AC military installation and would assume the mission of maintaining the RC enclave on 1 October 1997 that would license the Arkansas Army National Guard (ARARNG) to operate it with U.S. Army Reserve (USAR) activities being tenants and realigning current tenants from Fort Chaffee. Fort Sill also had to transfer Fort Chaffee area support responsibilities to Fort Sill, establish an Arkansas Army National Guard garrison at Fort Chaffee, and cancel the installation's designation as a U.S. Army Forces Command (FORSCOM) mobilization station and contingency mission site. In addition, Fort Sill had to ensure that the property declared excess would be turned over to the private sector environmentally clean.[25]

[25]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 11-14.

Although some transfer projects were still being worked in 2000-2001, federal law concerning excess property changed.[26] Through 2000 federal law required DOD to sell the excess property from closed bases for less than fair market value. This requirement forced communities to spend considerable amount of time negotiating an acceptable price with the federal government. In addition, DOD had to expend time, personnel, and resources negotiating the sale while maintaining responsibility for the costs of operating the base. Arkansas Congressman, Asa Hutchinson, challenged the wisdom of this practice. Addressing the Fort Chaffee situation specifically, he pointed out that if the property was transferred at current market value, the purchase price would exceed the expected revenues generated from redevelopment. Given this, there would be little incentive to pursue a redevelopment plan because the Fort Chaffee Public Trust would be unable to recoup the costs of purchasing the property. To aid transferring the property, Congressman Hutchinson urged Congress to attach an amendment to the DOD Authorization Bill for FY 2000 that would permit DOD to turn over closed military bases to local communities at no charge so that citizens could benefit from base closures.[27]

Working with colleagues in Congress, Congressman Hutchinson included language in the FY 2000 DOD authorization bill that allowed DOD to turn over closed facilities to local communities at no cost but directed them to use the property to generate economic development. This permitted the rapid transfer of Fort Chaffee to the Fort Chaffee Public Trust, saved the U.S. Army money, and accelerated community reuse plans. As a result of the transfer, the Fort Chaffee Public Trust received 3,793 acres in November 2000 at no cost and ultimately would obtain 5,235 acres and 770 buildings from the U.S. Army upon completion of any required environmental remediation. In fact, Fort Chaffee was the first major Army installation to transfer property under the no-cost policy with the transaction being conducted at a public ceremony held in Washington D.C. on 15 November 2000.[28]

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[26] Ibid., pp. 14-18.

[27] Ibid., p. 18.

[28] Ibid.; Memorandum for Command Historian with atchs, subj: USAFACFS Annual Command History for CY2001, 29 Jan

Although most of the transfer work had been finished in 2000, Fort Sill and Fort Chaffee had more to do in 2001. While the Army completed environmental field work for all property transfers, the Fort Chaffee staff focused on real property transfers, transferred 2,163 acres under the Economic Development Conveyance and Public Benefit Conveyance, prepared basic disposal support packages, and sent the completed ones to the Little Rock District Corps of Engineers Real Estate Division for deed preparation. Ongoing projects included retaining property until transfer, completing environmental cleanup documentation, coordinating transfer activities, and conducting in-process reviews as required.[29]

02, Doc I-37; Email msg with atch, subj: Draft Sections on BRAC and A76 for Annual Command History, 4 Mar 02, Doc I-38.

[29]Memorandum for Command Historian with atchs, subj: USAFACFS Annual Command History for CY2001, 29 Jan 02; Email msg with atch, subj: Draft Sections on BRAC and A76 for Annual Command History, 4 Mar 02.

In 2001 the Army also marked the thirteenth-year of BRAC implementation that included four separate rounds (1988, 1991, 1993, and 1995). The four BRACs not only created significant savings in operation and maintenance but also permitted the Army to replace an aging, ill-configured infrastructure with modern, efficient, "state-of-the-art" facilities designed for the twenty-first century. In addition, the realignment and closures freed up resources vital to future readiness while furnishing the greatest possible jumpstart for the economic development of former Army installations with Fort Chaffee being a good example.[30]

Circular A-76 Studies and Contracting Out

After a lull in contracting out for several years, budgetary pressures and the need to free up funds to modernize encouraged the Department of Defense (DOD) and the Department of the Army (DA) to make contracting out a priority once again. In 1998 the Department of the Army directed that Circular A-76 commercial activities cost competition studies be conducted to determine the more efficient provider with the goal of reviewing forty-eight thousand civilian and eight thousand military positions for Fiscal Year (FY) 1999 through FY 2003. In compliance with the Army's directive, the U.S. Army Training and Doctrine Command (TRADOC) announced in November 1998 that command-wide A-76 studies of the Directorates of Information Management (DOIM) and Training Services Centers (TSC) would begin in FY 1999. Subsequently in December 1998, TRADOC

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[30]Fact Sheet, subj: BRAC Update, 7 Jan 02, Doc I-39; Information Paper, subj: BRAC Closure/Realignment, 7 Jan 02, Doc I-40; FY99 BRAC Cleanup Plan and Abstract Analysis (Extract), Jul 00, Executive Summary, Doc I-41; Email msg with atch, subj: Draft section on BRAC and A76 for Annual Command History, 4 Mar 02.

said that Adjutant General/Military Personnel Offices (AG/MPO) would also undergo A-76 studies beginning FY 1999. The results of the DOIM, TSC, and AG/MPO studies and the ongoing study of the Directorate of Public Works (DPW) that had begun in May 1997 at Fort Sill and that was being done by a contractor, Management Analysis, Inc., would determine the more cost-effective way of doing those jobs by permitting government and private enterprise to put their most cost-efficient proposals and organizations forward for consideration.[31]

[31]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 19-20.

Unlike in the past when installation Directorate of Resource Management (DRM) carried out the studies without outside assistance, TRADOC decided to hire contractors to help conduct the DOIM, TSC, and AG/MPO studies. TRADOC selected this alternative because the studies were command-wide and not limited to a certain post and because local DRMs had been reduced in size in response to the budget cuts of recent years and lacked sufficient personnel to conduct the studies. Notwithstanding this fundamental change, the study concept remained constant with those of past years. Fort Sill would develop its most efficient DPW, DOIM, TSC, and AG/MPO organizations to compete with a potential contractor. The more cost-effective bid would then perform the function. Even though Fort Sill would receive contractor support on the studies, it would have to take a full and active part in the commercial activities study process, would have to take ownership of the outcome, and would have to live with the results of the studies. In view of this, Fort Sill established three installation study teams in FY 1999 to work with each of the command-wide contractors in order to coordinate, review, and change, as appropriate, study documents completed by the contractor.[32]

Out of the four studies, TRADOC and Fort Sill completed the one for the Facilities Maintenance Division in DPW first. On 9 August 2000 TRADOC announced a tentative decision to contract out the division, which represented about seventy percent of DPW's work force, to Baker Support Services, Inc., of Dallas, Texas, and set in motion a series of actions. Under federal law, unsuccessful bidders, affected employees, and unions could review the contract and the government's most efficient organization documentation and could appeal the decision to contract out to the administrative appeals board. Convened at Headquarters, TRADOC, Fort Monroe, Virginia, the appeals board reviewed three appeals in October 2000, determined that insufficient grounds existed to alter the results of the cost comparison process, and did not overturn the decision to convert DPW operations to contract. Given this decision, Fort Sill received authority to award the DPW contract to Baker Support Services, Incorporated in April 2001, and contract operations began in July 2001.[33]

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[32]Ibid., pp. 20-21.

[33]Ibid., p. 22; Memorandum for Command Historian with

atchs, subj: USAFACFS Annual Command History for CY2001, 29 Jan 02, Doc I-42; Email msg with atch, subj: Draft Section on BRAC and A76 for Annual Command History, 4 Mar 02, Doc I-43.

In the meantime, the AG, TSC, and DOIM studies moved forward. After months of work, the management study team for each study produced the most efficient and effective operation for the in-house bid and received approval from the garrison commander in 2001 to move to the next step. This led to In-House Cost Estimates. While the Army Audit Agency approved the AG In-House Cost Estimate, TRADOC Internal Review and Audit Compliance approved the TSC In-House Cost Estimate and the DOIM In-House Cost Estimate. Solicitations went out for all three, and Source Selection and Evaluation Boards convened to determine the future of AG and TSC. After reviewing and studying the bids, the respective boards decided to make tentative decisions in February 2002 for retaining AG and TSC in-house or contracting out their services. Unlike the other two, DOIM's board did not set a date for a tentative decision for in-house or contracting out the directorate's services.[34] **The Intermediate Range Nuclear Forces Treaty and Fort Sill**

Fearing a nuclear war and a perpetual arms race, the United States and the Soviet Union chose to negotiate in order to reduce their intermediate-range nuclear forces in Europe. After discussions over several years, they finally signed the Intermediate-Range Nuclear Forces (INF) Treaty on 8 December 1987. Under its provisions the treaty would eliminate all missiles with ranges of 300 to 3,400 miles (500 to 5,500 kilometers) within three years of ratification. This would reduce arms delivery vehicles rather than establish a ceiling that had been the practice in the past. Specifically, the treaty outlined eliminating the Pershing II missile and its launcher and launch pad shelter; the Pershing IA missile and its launcher; the Pershing IB missile; the Ground-Launched Cruise Missile and its launch canister and launcher; the SS-20 missile and its launch canister, launcher, missile transporter vehicle, and fixed structure for the launcher; the SS-4 missile and its missile transporter vehicle, missile erector, launch stand, and propellant tanks; the SS-5 missile; the SS-12 missile and its launcher and missile transporter vehicle; the SS-23 missile and its launcher and missile transporter vehicle;

[34]Memorandum for Command Historian with atchs, subj: USAFACFS Annual Command History CY2001, 29 Jan 02; Email msg with atch, subj: Draft Section on BRAC and A76 for Annual Command History, 4 Mar 02.

and the SSC-X-4 ground-launched cruise missile system and launch canister and launcher. To verify elimination the INF Treaty provided for on-site inspections to be conducted. They would ensure the removal of 903 American missiles and 1,836 Soviet missiles.[35]

[35]1990 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Historical Review (AHR), pp. 18-19; Fact Sheet, subj: INF Treaty, 2001, Doc I-44; Fact Sheet, subj: INF Eliminations and Inspectable Sites, 2001, Doc I-45; Fact Sheet, subj: INF, The Beginning and End of an Era, 2001, Doc I-46; Fact Sheet, subj: INF Inspection Status, 2001, Doc I-47.

Beginning in 1988 when the treaty came into force upon ratification and continuing into 2001, the Americans and Soviet conducted on-site inspections.[36] Because it had a Pershing II launcher repair facility and a training facility, Fort Sill underwent on-site inspections between 1988 and 2001 conducted by the On-Site Inspection Agency (OSIA), which later merged into the Defense Threat Reduction Agency (DTRA) on 1 October 1998. The Soviets conducted a baseline inspection of the training facility on 16-17 July 1988 and the training facility on 3-4 August 1988, completed the first quota inspection of training facilities on 17-18 March 1989, held a closeout inspection of training and repair facilities on 26-27 March 1991 to confirm that all treaty-related Pershing missiles had been removed from the post, and conducted a training quota inspection on 13-14 October 1991. Notwithstanding these inspections that verified the installation's adherence to the treaty, Fort Sill was still subject to short-notice inspections until June 2001. The last short-notice inspection to verify treaty compliance was scheduled for March 2001, but the Russians declined to come. This ended Fort Sill's involvement with the INF Treaty.[37]

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[36]Fact Sheet, subj: INF Inspection Status, 2001; Fact Sheet, subj: INF Treaty, 2001; Fact Sheet, subj: The Pershing Weapon System and its Elimination, 22 Jan 02, Doc I-48.

[37]Interview, Dastrup with LTC James W. Carney, Power Projection Division, DPTM, 8 Jan 02, Doc I-49; Fact Sheet, subj: INF Eliminations and Inspectable Sites, 2001; 1991 USAFACFS Annual Command History (ACH), pp. 21-23; 1992 USAFACFS ACH, p. 27.

Fort Sill and Power Projection

The end of the Cold War at the beginning of the 1990s caused the United States to restructure its national military strategy. Rather than depending upon forward deployed military forces in Europe as it had done for over forty years, the new strategy focused on deploying military forces from the continental United States (CONUS). Equally important, the new military strategy embraced the principles of deterrence, forward presence, crisis response, and reconstitution and required Army installations, such as Fort Sill, Oklahoma, to have the ability of responding rapidly to regional crises throughout the world. To help Fort Sill fulfill its force projection requirements Congress approved an Army Strategic Mobility Program railhead in 1998 and funded it in the Fiscal Year (FY) 2000 budget. Besides upgrading fifteen installations, fourteen airfields, seventeen strategic seaports, and eleven ammunition depots and plants throughout the United States, the Army Strategic Mobility Program outlined upgrading Fort Sill's railway system to provide an improved capability to move the heavy field artillery pieces of the III Armored Corps Artillery to their deployment ports and to help the installation serve as a springboard for the rapid deployment of Army forces throughout the world.[38]

Fort Sill launched construction of the new railhead facility in 2000 and continued the work in 2001 with the goal of making the installation capable of major shipments in short periods of time. As of 2000-2001, Fort Sill had the ability to load and ship a little more than one hundred railcars in a day. Upon completion, the new railhead facility would triple that capacity and provide a secure marshaling area where equipment waiting for shipping could be stored. Also, the new railhead would furnish modern scaling capability, container storage, and handling capability and would permit loading an entire battalion without switching railcar operations, while loading and staging could be done without closing roads.[39]

As a part of its power projection responsibilities,

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[38]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 22-23.

[39]2000 USAFACFS ACH, p. 23; Memorandum for Command Historian, subj: Coordination of 2001 USAFACFS Annual Command History, 15 Mar 02, Doc I-49a.

Fort Sill deployed units throughout the world in 2001 in response to the country's strategic needs and redeployed them back. In February 2001 A Battery, 2nd Battalion, 4th Field Artillery returned to Fort Sill after more than five months in the Kuwaiti desert. While it was stationed in Kuwait, the battery had the mission of providing rocket and missile fires in support of the Combined Task Force Kuwait to deter Iraqi aggression and to maintain stability in Southwest Asia and simultaneously demonstrated American preparedness to defend and assist the Kuwait. Subsequently in August 2001, Fort Sill deployed Task Force Diamond consisting of 140 soldiers with most of them coming from 1st Battalion, 77th Field Artillery, for about six months as part of a permanent peacekeeping mission in support of Combined Joint Task Force Kuwait.[40]

FORCE PROTECTION: OPERATION NOBLE EAGLE AND OPERATION ENDURING FREEDOM

[40]Interview, Dastrup with LTC James W. Carney, Force Protection Division, DPTM, 8 Jan 02, Doc I-50; "Soldiers Home After Kuwait Deployment," Fort Sill Cannoneer, 1 Feb 01, p. 1a, Doc I-51; "Task Force Deploys to Kuwait," Fort Sill Cannoneer, 23 Aug 01, p. 1a, Doc I-52.

As it was preparing to implement controlled access to the installation and as the Directorate of Public Safety was well into its campaign to register privately owned vehicles (POV) into the Department of Defense (DOD) vehicle registration system, two airplanes hijacked by terrorists crashed into the World Trade Center in New York City, and another one hit the Pentagon in Washington D.C on 11 September 2001. This initiated an immediate response by the Army and local, state, and federal agencies. At 9:30 A.M., for example, the Army alerted the Military District of Washington Engineer Company to stand ready after two airplanes had crashed into the World Trade Center. By 11:00 A.M. the company's Initial Response Team -- an advance party of rescue engineers -- was staged at Fort McNair, Washington D.C., and then airlifted to the Pentagon attack site by 1:00 P.M. to find survivors that could be easily reached. Five hours after the crash, the remainder of the company arrived and began searching to locate

survivors in the first, second, and third floors in the outer rings of the Pentagon.[41]

[41]"Army Will Soon Implement A New, Costly Force Protection Plan," Inside the Army, 7 Jan 02, p. 1, Doc I-53; Msg, subj: Increased Vigilance for Possible Acts of Terrorism, 301849Z May 01, Doc I-54; Briefing, subj: Force Protection O&O Status Update, 1 Nov 01, Doc I-55; TRADOC Regulation 525-13, Force Protection Program, 12 Dec 97, pp. 3-7, Doc I-56; Email msg, subj: Force Protection Plan, 9 Jan 02, Doc I-57; Briefing, subj: Force Protection, 1998, Doc I-58; Email msg with atch, subj: History Document, 26 Feb 02, Doc I-59 Email msg with atch, subj: History Document, 26 Feb 02; Email msg, subj: RE, Force Protection Plan, 9 Jan 02; Email msg, subj: FW, Sources on Anti-terrorism, 6 Dec 01, Doc I-60; TRADOC Regulation 525-13, Force Protection Program, Jul 01, p. 1a, Doc I-61; "Gate Access Controls Start Sept 1," Fort Sill Cannoneer, 26 Jul 01, p. 1a, Doc I-62; "Registration Stickers Required," Fort Sill Cannoneer, 26

Jul 01, p. 1a, Doc I-63; "Security Forces Trained, Tested," Fort Sill Cannoneer, 2 Aug 01, p. 1a, Doc I-64; "Gate Access Control Begins Oct 1," Fort Sill Cannoneer, 16 Aug 01, p. 1a, Doc I-65; "Special Unit Vital in 'Noble Eagle,'" ArmyLink News, 19 Sep 01, Doc I-66; Memorandum for CG, TRADOC, subj: Fort Sill Access Plan, 23 May 01, Doc I-67.

On 15 September 2001 President George W. Bush authorized a partial mobilization of the United States military services' reserves for homeland defense and civil support missions, known as Operation Noble Eagle, in response to the terrorist attacks. While the authorization legally allowed Secretary of Defense Donald Rumsfeld to call up to one million reservists for up to two years of active duty, service chiefs only asked for thirty-five thousand people. Of these the Army planned to activate ten thousand soldiers with specialties in air defense, intelligence support, military police, medical services, logistics, engineering, search and rescue, and civil affairs, among others. Upon activation these soldiers would augment active duty personnel for homeland defense and civil support. By 1 October 2001 almost eight thousand U.S. Army National Guard and U.S. Army Reserve soldiers in

eighty-seven units had reported for active duty as a part of Operation Noble Eagle.[42]

[42]"'Noble Eagle' Needs 35,000 Reservists," ArmyLink News, 20 Sep 01, Doc I-68; "Reserve Components to Guard America's Homeland," ArmyLink News, 25 Sep 01, Doc I-69; "D.C. National Guard First to be Mobilized," ArmyLink News, 1 Oct 01, Doc I-70; "Army Guard, Reserve Units Called Up," ArmyLink News, 4 Oct 01, Doc I-71; "Reservists Called to Active Duty," Fort Sill Cannoneer, 27 Sep 01, p. 1a, Doc I-72; "Reserve, Guard Units Called Up," Fort Sill Cannoneer, 4 Oct 01, p. 1a, Doc I-73; Interview, Dastrup with LTC James W. Carney, Plans and Exercise Division, DPTM, 8 Jan 02, Doc I-74; Briefing, subj: CG Update, 21 Dec 01, Doc I-75.

Shortly after the terrorist attacks on the Pentagon and the World Trade Center, the National Military Command Center directed all military installations to go to threat condition delta, the highest state of alert. Fort Sill immediately implemented its force protection plan, which had been completed in March 2001, on the morning of 11 September 2001. The post opened its installation operations center (formerly called emergency operations center) to coordinate security measures around the clock and activated its quick reaction force to guard the outer perimeter roads, to serve as roving security patrols, and to perform other essential duties. The installation also closed all secondary gates, initiated visual and physical searches of all vehicles coming onto the post, conducted personnel identification checks, directed subordinate commands to post guards and to control access to their facilities, canceled all non-essential post events, required only essential personnel to report for duty on 12 September 2001, furnished added security personnel for high risk targets, such as the Field Artillery Training Center's dormitories (called starships), the Reynolds Army Community Hospital, the Geronimo and Sheridan Road Elementary Schools, and McNair Hall (Fort Sill headquarters building), among others, and erected concrete and water-filled barriers around key facilities and buildings to keep vehicles at a safe distance. For example, the installation hardened Key, Scott, and Bentley gates, which were major entries, with concrete and water-filled blocks arranged to create s-shaped entrances to slow down traffic and to help control access. Basically, Fort Sill intensified its awareness of potential terrorist activities on post or in the surrounding communities so that it could take prudent measures to minimize casualties and damage and could restore order as quickly as possible if anything occurred. As this was being done, Fort Sill continued performing its primary mission of initial entry training for new soldiers and leadership training for officers and noncommissioned officers, conducting other essential functions, and supporting force projection assignments.[43]

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[43]Memorandum with atch for Command Historian, subj: Coordination of 2001 USAFACFS Annual Command History, 15 Mar 02, Doc I-76; Email msg, subj: OPORD, 22 Sep 01, Doc I-77; Email msg, subj: Immediate Force Protection Action, 11 Sep 01, Doc I-78; Email msg, subj: Key Personnel Location and Contact Info, 11 Sep 01, Doc I-79; Email

msg, subj: Anti-Terrorism/Force Protection Guidance, 11 Sep 01, Doc I-80; Email msg, subj: Force Protection Working Group Meeting, 11 Sep 01, Doc I-81; Email msg, subj: Anti-Terrorism/Force Protection Guidance, 11 Sep 01, Doc I-82; Email msg, subj: Guidance for 12 Sep 01, Doc I-83; Email msg, subj: Guidance for 12 Sep 01, Doc I-84; Email msg, subj: Fort Sill SITREP, 11 Sep 01, Doc I-85; Email, subj: Guidance from Crisis Management Team Meeting, 12 Sep 01, Doc I-86; Email msg, subj: Daily Sitrep for Approval to send to TRADOC, 13 Sep 01, Doc I-87; Briefing, subj: CG Update, undated, Doc I-88; Briefing, subj: CG Update, 22 Sep 01, Doc I-89; Briefing, subj: CG Update, 28 Sep 01, Doc I-90; Briefing, subj: CG Update, 15 Oct 01, Doc I-91; Briefing, subj: CG Update, 25 Nov 01, Doc I-92; Briefing, subj: CG Update, 27 Dec 01, Doc I-93.

Maintaining such security measures taxed the post. As of 28 September 2001, a total of 704 personnel, primarily from III Armored Corps Artillery, were serving in security positions of some kind. They served on the quick reaction force, manned road blockades, guarded gates, and secured high-risk areas and command and control facilities, to name just a few. For example, the quick reaction force conducted mounted patrols around the installation. As the command update briefings during the last four months of 2001 to the Commanding General of Fort Sill, Major General Michael D. Maples, indicated, the number and composition of the personnel assigned to post security activities, excluding the Law Enforcement Command, varied, while security duties took soldiers away from their primary duties and was labor intensive. In view of this latter challenge, Fort Sill took advantage of Army National Guard units and reserve personnel being mobilized for Operation Noble Eagle to lighten the load on active duty personnel. Among these units were Detachments 1 and 2 of the 5045th Garrison Support Unit (GSU) from the Army Reserve that were activated between October and December 2001. Detachment 1 was the GSU Military Police, and Detachment 2 provided staffing for the installation operations center (IOC), allowing permanent party personnel to return to their normal duties. In the meantime, A Company, 3-141st Infantry from the Texas Army National Guard was mobilized in November 2001 to furnish security forces, permitting

most III Armored Corps Artillery soldiers to return to their normal training schedule.[44]

[44]Email msg with atch, subj: History Document, 26 Feb 02; Briefing, subj: CG Update, 28 Sep 01; Briefing, subj: CG Update, 8 Oct 01, Doc I-94; Briefing, subj: CG Update,

28 Oct 01, Doc I-95; Briefing, subj: CG Update, 4 Nov 01, Doc I-96; Briefing, subj: CG Update, 11 Nov 01, Doc I-97; Briefing, subj: CG Update, 8 Dec 01, Doc I-98; Briefing, subj: CG Update, 15 Dec 01, Doc I-99; Briefing, subj: CG Update, 21 Dec 01; Interview, Dastrup with LTC James Carney, EOC, 8 Jan 02; Email msg, subj: Sitrep, 2 Oct 01, Doc I-100; Permanent Order 345-20, 5th Army, 11 Dec 01, Doc I-101; Permanent Order 274-2, 5th Army, 1 Oct 01, Doc I-102; Email msg, subj: Activation of 5045th Garrison Support Unit, 28 Sep 01, Doc I-103; Email msg, subj: DA Mobilization Order 005-01 Operation Noble Eagle, 1 Oct 01, Doc I-104; "Texas NG soldiers Activated Here," Fort Sill Cannoneer, 13 Dec 01, p. 8a, Doc I-105; Briefing, subj: Company A 3D Battalion, 141st Infantry, undated, Doc I-106; Sitrep, 4 Nov 01, Doc I-107.

Force protection also went beyond providing physical security. Recognizing the constant threat of terrorist activities involving weapons of mass destruction, especially chemical and biological agents, the installation staff and installation operations center had to identify deficiencies, such as the readiness of nuclear, biological, and chemical detection and protection equipment, decontamination procedures, and others, had to recommend corrective actions, and had to identify the additional resources required to sustain force protection in support of the installation's mission over a long period of time. At the same time the installation provided training on cordon and search operations, the response to a bomb threat, the treatment and evacuation of casualties, and other subjects. Anticipating a potentially large mobilization of Individual Ready Reserve (IRR) soldiers, in the meantime, the Department of the Army activated Detachment 1, 1-379th Regiment and Detachment 1, 2-379th Regiment, both from the 95th Training Division, to augment Fort Sill's reception, processing, and training capability.[45]

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[45]Memorandum with atch, subj: Coordination of 2001 USAFACFS Annual Command History, 15 Mar 02; Email msg with atch, subj: History Document, 26 Feb 02; DOD News Release, 19 Dec 01, National Guard and Reserve Mobilized as of 19 Dec, Doc I-108; DOD News Release, 21 Nov 01, National Guard and Reserved Mobilized as of 21 Nov, Doc I-109; Briefing, subj: CG Update, 25 Nov 01; Briefing,

A reduction in the threat combined with Fort Sill's hardening efforts to decrease security manning requirements while maintaining appropriate force protection measures. As General Maples acknowledged in December 2001, Fort Sill executed force protection well following the terrorist attacks of 11 September 2001.[46]

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subj: CG Update, 8 Dec 01; Briefing, subj: CG Update, 21 Dec 01; Memorandum for HQ TRADOC, subj: Fort Sill Force Protection Requirements, 21 Sep 01, Doc I-110.

[46]Email msg with atch, subj: History Document, 26 Feb 02; Briefing, subj: CG Update, 15 Dec 01; Briefing, subj: CG Update, 27 Dec 01; Briefing, subj: CG Update, 28 Sep 01.

Recognizing that it was ill-prepared to prevent, detect, or respond to a terrorist incident like those of 11 September 2001, meanwhile, the Army saw the need to improve force protection and started crafting a draft plan to address that shortcoming. The draft plan called for a proactive, independent assessment and response by installation commanders and the creation of an IOC that would operate around the clock. As outlined, the IOC would be the installation's command and control center for force protection, would monitor security status, would coordinate force protection assets to deter and mitigate threats, and would respond to internal and external crises. To provide these services, the installation operations center would be equipped with government-off-the-shelf and commercial-off-the-shelf technology that would enable communications with local, state, and federal law enforcement agencies, the National Command Authority, the Federal Emergency Management Agency, and other non-military organizations.[47]

The Army's draft operational and organization plan outlined other key provisions that would eventually influence Fort Sill. First, it established the commander's area of operations and divided it into concentric rings. The inner ring encompassed the mission essential vulnerable areas that had to be protected. The middle ring included the rest of the installation and comprised items, such as housing and ammunition storage facilities. The third ring or outer was considered to be the commander's area influence beyond the installation.[48]

In keeping with the Department of the Army's tasking to write a force protection operational and organizational plan, TRADOC began developing one during the last months of 2001 with input from Fort Sill and other TRADOC posts. As the Army had already done, TRADOC realized that 11 September 2001 had changed the operational environment. United States military installations had to prevent, deter, and defend against any type of terrorist attack because transnational organizations would continue to wage overt and covert war against the United States.[49]

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[47]"Army Will Soon Implement A New, Costly Force Protection Plan," Inside the Army, 7 Jan 02, pp. 1, 9.

[48]Ibid.

[49]Memorandum for HQ TRADOC, subj: Draft TRADOC Force Protection Operational and Organizational Plan, 9 Nov 01,

CHAPTER TWO
LEADER DEVELOPMENT:
TRAINING AND EDUCATION

INTRODUCTION

As in past years, the U.S. Army Field Artillery School continued its training mission in 2001. During the year, the School wrote the Fires Training XXI Strategy, certified The Army School System field artillery battalions to use school products, employed distance learning to train active and reserve component officers and soldiers, refined its officer courses, and conducted new equipment training.

FIRES TRAINING XXI STRATEGY

Doc I-111; HQ TRADOC, Draft Force Protection Operational and Organizational Plan Version 4.0 (Extract), 16 Nov 01, pp, 2, 5, Doc I-112; Memorandum for TRADOC Installation Commanders, subj: Command Force Protection Planning Guidance, undated, Doc I-113; Email msg, subj: Response to Draft O&O Plan, 9 Nov 01, Doc I-114. See Email msg with atch, subj: FP Plan, 9 Jan 02, Doc III-115, for Fort Sill's Force Protection Plan.

Late in 2001, the U.S. Army Field Artillery School introduced its Fires Training XXI Strategy for institutional, individual, unit, and system training. The Strategy outlined how the Field Artillery would train for the next five to eight years and the available training products. Equally important, the Strategy described the School's plan to rely more on simulators and simulations and less on live training, to have more focused training events to maximize the use of scarce resources, and to have more multi-echelon battle staff training. Ultimately, the School would also move from resident training conducted at Fort Sill, Oklahoma, to more training being conducted world-wide through distance learning and The Army School System (TASS) training battalions.[1]

DISTANCE LEARNING

[1]COL (Ret) John K. Anderson, "Fires Training XXI: A Training Strategy for the 21st Century, Field Artillery, Jan-Feb 02, pp. 8-11, Doc II-1; USAFAS, Fires Training XXI, 30 Sep 01, Forward and Preface, Doc II-2.

In 2001 the Field Artillery School leveraged distance learning technology to train all Army components effectively and efficiently to a single Total Army standard. For Army National Guard soldiers, distance learning permitted them to stay at home and to earn promotion points. One such course was the two-phase Field Artillery Captains Career Course for the Reserve Components. During phase one, the soldiers completed self-paced, computer-based instruction via the Internet, while phase two furnished a mix of computer lessons on the Internet and live instruction at Fort Sill. Basically, the School's distance learning program encompassed Military Occupation Speciality (MOS) qualification courses, additional skill identifier and skill qualification courses, reclassification courses, officer functional area and branch qualification courses, professional military education courses for officers, and functional/educational courses. In keeping with the tasking from the U.S. Army Training and Doctrine Command, the Field Artillery School planned to leverage distance learning more in the future.[2]

THE ARMY SCHOOL SYSTEM

In 2001 The Army School System (TASS), composed of active and reserve component schools, continued to be a major Army training initiative as it had been since the mid-1990s.[3] As a part of TASS, the U.S. Army Field Artillery School (USAFAS) had the responsibility of accrediting field artillery school battalions. Accreditation, which was required every three years, permitted field artillery school battalions and training sites to teach USAFAS courses and use USAFAS-approved

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[2]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 28-29; "Distance Learning: Keeping Soldiers in Units," Field Artillery, Feb 02, p. 39, Doc II-3; Information Technology and Production Services Division, Futures Development Integration Center, USAFAS, Distance Learning Homepage, 29 Jan 02, Doc II-4; Total Army Distance Learning Program, 29 Jan 02, Doc II-5; Fact Sheet, subj: USAFAS DL Schedule of Classes FY01, undated, Doc II-6; Email msg, subj: DL Input to Annual Command History, 18 Mar 02, Doc II-7.

[3]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 29-32.

courseware. During Fiscal Year (FY) 2001, for example, the Field Artillery School accredited the 1-189th Regiment Regional Training Institute (RTI) in Oklahoma City (Region F); 1-213th Regiment Regional Training Institute in Guernsey, Wyoming (Region G); and USAFAS (Region F).[4]

OFFICER EDUCATION SYSTEM

Field Artillery Officer Basic Course

[4]Ibid.; Email msg, subj: TASS 01 FA History, 23 Jan 02, Doc II-8; Email msg, subj: TASS 01 FA History, 24 Jan 02, Doc II-8a; Email msg with atch, subj: TASS, 26 Feb 02, Doc II-9.

During 2001, the U.S. Army Field Artillery School developed newly commissioned second lieutenants into Field Artillery leaders in nineteen weeks and four days. To do this, the Field Artillery School conducted a three-phase Field Artillery Officer Basic Course (FAOBC). Phase one (Foundation) lasted the first seven weeks, focused on platoon leader skills, such as reconnaissance, selection, and occupation of a position; communications; observed fire; maintenance; and mounted and dismounted land navigation, to name just a few, and had one field training exercise. Phase two (Pillars) took place during the eighth through thirteenth week, concentrated on manual and automated gunnery and basic fire support, and had one field training exercise. Phase three (Capstone) began the fifteenth week of the course, provided additional instruction in automated gunnery techniques, and furnished combined arms training along with other critical fire support instruction. Other instruction included joint operations along with a JANUS computer exercise and a dismounted fire support officer exercise, commonly called the Light Fire Support Officer Lane that had been introduced in recent years. During the last two weeks of the course, the school divided the student officers into one of three specialized instructional courses or "tracks" based upon the weapon system in their first units of assignment to give more hands-on experience. Students in the cannon tracks (heavy or light) capped FAOBC with the Redleg War that pulled together everything that they had learned during the course. During the war, they served as a member of a fire direction center and a howitzer crew, worked as a company fire support officer, and learned the capabilities of close air support.[5]

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[5]The Army Training and Leader Development Panel Officer Study, 25 May 01, Doc II-10; Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan

02, Doc II-11; Briefing, subj: Leader Development Transformation, 8 Nov 01, Doc II-12; Email msg, subj: FAOBC, 26 Feb 02, Doc I-13; Interview, Dastrup with MAJ Alvin Peterson, Chief, Cannon Division, GD, 24 Jan 02, Doc II-14.

Modular instruction and testing, however, formed the heart of the three-phase FAOBC in 2001. The department divided FAOBC into four modules: the common core module of mandatory U.S. Army Training and Doctrine Command (TRADOC) subjects, leadership, training management, and ethics; the platoon leader module with foundational subjects on the aiming circle and maintenance; the fire direction module; and the fire support module. Each module had a series of practical exercises and culminated with a final examination. Each student had to achieve a passing module grade and had to strive to pass every graded examination within the module. This meant that a student could fail a particular test within the module without being recycled and could keep abreast of the rest of the class as long as the student passed the module examination. In contrast, the old system centered on the concept of test/fail/retrain/retest, set the conditions for student failure because students could not keep up once they had failed a particular examination, and contributed to high attrition rates whereas the new system of testing reduced the attrition rate.[6]

[6]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 36-41; Interview, Dastrup with Peterson, 24 Jan 02.

Basic Officer Leader Course. Influenced by the requirement for more hands-on training, better digital training with the fielding of sophisticated command and control systems, and shared training opportunities by officers, the Army acknowledged the imperative to restructure its Officer Education System (OES) to keep it relevant in the new and future operational environment. With this in mind, Commanding General of TRADOC, General John N. Abrams, directed early in 2000 an internal TRADOC study to be conducted to identify potential modifications to OBC to ensure that the Army's institutional base contributed to the readiness of the operational army and supported its transformation to the objective force. Shortly afterwards in June 2000, the Chief of Staff of the Army, General Eric K. Shinseki, tasked General Abrams to convene an Army Training and Leader Development Panel (ATLDP) to review, assess, and provide recommendations for the development of training for the twenty-first century. Among other recommendations, the ATLDP study, released on 25 May 2001 after about thirteen thousand officers, soldiers, and family members had been surveyed and after extensive interviews had been conducted, urged reforming OES to facilitate career-long, progressive, and sequential leader development and to prepare leaders for operating in a new strategic environment that would be characterized by regional threats, full spectrum operations, and information age technology. Equally important, the ATLDP study found that the quality and relevance of OES instruction failed to meet the expectations of many officers and did not satisfactorily train officers in combined arms skills or support the bonding, cohesion, and rapid teaming required in full spectrum operations. The Army missed shared training opportunities in OES because training for company grade officers was too branch oriented. To remedy this the study urged developing and implementing a two-phase OBC as a viable means to restructure OES for second lieutenants. Phase one should provide basic small unit combat training to all second lieutenants at a œntral location with a focus on warfighting and the warrior ethos. Phase two should supply platoon-level, branch-specific training in tactical and technical skills. Ultimately, this training would create tactically and technically proficient second lieutenants (small unit leaders) with common bonds with their combined arms peers and a warrior ethos.[7]

[7]"Army Acts on Training and Leaders Development Panel

Based upon the internal TRADOC study, in the meantime, General Abrams directed TRADOC to make fundamental changes to OBC. In June 2000 he tasked TRADOC to create a one-site common core phase for Officer Basic Course Training (OBCT) that would immediately follow commissioning. With this format outlined in January and February 2001, newly commissioned officers would attend six weeks of OBCT at Fort Benning, Georgia, where they would receive common-core training in topics, such as training and leadership. Afterwards, they would attend a branch school for branch-specific training for thirteen weeks and four days. Field Artillery second lieutenants, for example, would go through six weeks of OBCT, through thirteen weeks and four days of

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Findings," U.S. Army News Release, 25 May 01, Doc II-15; "Survey Says 'Balance Army Needs with Army Beliefs," ArmyLink News, 25 May 01, Doc II-16; "Study Suggests Fixes for Officer Development," ArmyLink News, 25 May 01, Doc II-17; ATLDP Officer Study, 25 May 01, pp. 7, 11, 12; Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02; Interview, Dastrup with Peterson, 24 Jan 02.

FAOBC, and through one of the three functional courses of varying lengths.[8]

[8]2000 USAFACFS ACH, pp. 40-41.

Based upon the ATLDP study of May 2001 and the internal TRADOC study, OBC went through additional improvements later in 2001 that reinforced the initial work with OBCT. In mid-2001 TRADOC announced a two-phase OBC, called the Basic Officer Leaders Course (BOLC), that would be implemented by 2003 after pilot courses had been conducted to refine it. Like the OBCT phase one, BOLC Phase one would be a one-site common core phase that would immediately follow commissioning. Newly commissioned second lieutenants would attend BOLC phase one at Fort Benning, Georgia, or an alternate site to be determined in the near future where they would receive common-core training on ethics, leadership, and the warrior ethos, to name a few subjects. Afterwards, they would attend a branch school for BOLC phase two where they would receive branch-specific training as OBCT had outlined. Altogether, the two-phase BOLC could not exceed twenty weeks of instruction or the current length of OBC. Field Artillery second lieutenants, for example, would go through six weeks of BOLC phase one, through thirteen weeks and four days of BOLC phase two, and through one of three functional field artillery courses of varying lengths.[9]

In 2001 TRADOC explained that the two-phase OBC was a revolutionary approach to leader development. In six weeks phase one would provide a solid foundation for success by furnishing a common Army standard for small unit fighting and leadership, would teach common platoon leader skills

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[9]2000 USAFACFS ACH, pp. 40-41; LTC Gordon K. Rogers, "Transforming Institutional Training and Leaders Development," Army AL&T, Nov-Dec 01, pp. 7-8, Doc II-18; Memorandum for CG, subj: Trip Report -- TRADOC Leaders Development Campaign Plan Conference, 17 Oct 01, Doc II-19; Interview, Dastrup with Peterson, 24 Jan 02.

and officership, would supply opportunities for hands-on training, would limit classroom training, would be performance-oriented field training, and would develop a warrior ethos. Such training would produce competent small unit leaders that would be ready to move into branch training. In thirteen weeks and four days BOLC phase two would provide branch-oriented training. Together, the two phases would produce an officer steeped in Army values and schooled in small unit leadership and branch-specific competencies.[10]

[10]Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02; Briefing, subj: BOLC Course Description, 11 Jan 02, Doc II-20.

For the Field Artillery School and other TRADOC branch schools, BOLC phase two also meant decreased technical training in an increasingly technical environment. Directed by TRADOC, the Field Artillery School had to create a BOLC phase two program of instruction (POI) by squeezing nineteen weeks and four days of training from the old FAOBC into thirteen weeks and four days. To accomplish this objective the School created a working group in mid-2001 with the Gunnery Department that had proponency for OBC taking the lead. Based upon guidance from the Commandant of the Field Artillery School, Major General Toney Stricklin, the working group had to look for inefficiencies in the existing POI, had to find opportunities to add more field training or hands-on training for more rigor, and had to recognize that time restraints would prevent training some tasks and skills to past standards. Priorities had to be established so that the most important tasks and skills would be trained to the desired level. In addition, the working group had to ensure that Field Artillery second lieutenants would be trained to serve as a fire direction officer, fire support officer, and platoon leader because these positions would be their main assignments upon graduating from the School.[11]

As directed by General Stricklin, the working group developed BOLC phase two in 2001 with the goal of having it in place for the start of a pilot course early in 2002. To reach the mandated course length of thirteen weeks and four days, the working group abolished some tasks entirely, reduced the time allotted to some tasks, such as manual gunnery, cut back on some TRADOC common core subjects, developed comprehensive classroom tests, and abolished the practice of each branch in the School conducting its own tests. The working group also abandoned the modular concept of instruction for a six-block methodology of instruction. Using the modular concept, the School taught modules of instruction on a particular topic during the three-phase OBC POI but never integrated the subject matter until the Redleg War that took place late during FAOBC.

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[11]Interview, Dastrup with Peterson, 24 Jan 02; Briefing, subj: BOLC Phase II, 2001, Doc II-21; Briefing, subj: BOLC Course Description, 11 Jan 02; Memorandum for CG, subj: Trip Report -- TRADOC Leader Development Campaign Plan Conference, 1-3 Oct 01, 17 Oct 01.

Because of this method of instruction, the second lieutenants really did not know how gunnery and fire support fit together until they were almost ready to graduate. The six-block format, however, eliminated this deficiency. For example, block one would provide instruction in basic ballistic theory, manual gunnery, and analog (voice) communications, while block two would focus on basic automated gunnery and digital communications. Block three would address advanced automated gunnery. Block four would concentrate on the Advanced Field Artillery Tactical Data System (AFATDS) and defensive operations. Block five would concentrate on AFATDS and offensive operations, while block six would furnish track-specific training. More important, the proposed block method of instruction as designed late in 2001 blended gunnery and fire support together at the beginning of the POI so that the students would learn early in the course how gunnery and fire support worked together and also provided a comprehensive test and practical exercise at the conclusion of each block.[12]

Field Artillery Captains Career Course

[12]Interview, Dastrup with Peterson, 24 Jan 02; Briefing, subj: BOLC Phase II, 2001; White Paper, subj: Transforming Technical Fire Control, undated, Doc II-22.

In 2001 the U.S. Army Field Artillery School (USAFAS) conducted a two-phase Field Artillery Captains Career Course (FACCC). Over a period of several years beginning in the mid-1990s, TRADOC moved from its two-course Captain Professional Military Education (CPT PME) that consisted of the Officer Advance Course (OAC) at various service schools, such as the Field Artillery School, and the Combined Arms Services Staff School (CAS3) at Fort Leavenworth, Kansas, for a single course. TRADOC shortened CAS3 from nine to six weeks in 1996, directed the synchronization of OAC completion dates with CAS3 start dates in 1997, reduced the OAC from twenty to eighteen weeks in 1998, and renamed it the Captains Career Course (CCC) the same year.[13]

Specifically, Field Artillery captains and senior first lieutenants went through a demanding, rigorous eighteen-week FACCC course in 2001 that afforded them the last field artillery specific training before attending CAS3 and the U.S. Army Command and General Staff College (CGSC) at Fort Leavenworth, Kansas. The officers made a permanent change of station (PCS) move to the Field Artillery School where they received the equivalent of two-weeks of TRADOC common core instruction and sixteen weeks of branch tactical, technical, and warfighting instruction. After seven weeks of large-group instruction that began FACCC, the students moved into the small group instruction portion for eleven weeks of tactical instruction led by a small group leader from the U.S. Army, the U.S. Marine Corps, or an allied officer from Great Britain, Australia, or Canada. FACCC ensured that graduates were tactically and technically proficient to serve as a battalion/brigade fire support officer, a battalion/brigade/division staff officer, and a battery commander. After completing the eighteen weeks at Fort Sill, the officers moved in a temporary duty (TDY) status to Fort Leavenworth for CAS3 and returned to Fort

[13]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 41-42.

Sill for graduation.[14]

[14]Email msg, subj: FACCC, 26 Feb 02, Doc II-23.

Although FACCC retained its focus of producing fire support officers, the Field Artillery School made gunnery instruction more rigorous. Previously, gunnery instruction had consisted of seventy-two hours of manual gunnery and thirty-two hours on the Battery Computer System (BCS) and mirrored gunnery instruction in the Officer Basic Course (OBC). Beginning in 2002, all FACCC students would receive seventy-two hours of instruction on the Advanced Field Artillery Tactical Data System (AFATDS) Version A99 software with a focus on the technical aspects of the system. They would also receive some manual gunnery because some officers had served in Multiple-Launch Rocket System (MLRS) units where cannon gunnery fundamentals did not apply and because manual gunnery contained the concepts for trouble-shooting inaccurate fires and was the best method for teaching ballistic theory. In addition, traditional gunnery instruction on manual/BCS was reduced from 104 to 64 hours; and an additional twelve hours of instruction on AFATDS technical fire direction was provided because AFATDS would be replacing the BCS in fire direction centers in 2002. Thirty hours of advanced battalion-level instruction was also added to tie the gunnery-related instruction to the tactical fire direction received in AFATDS instruction.[15]

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[15]Interview, Dastrup with Col Stephen D. Mitchell, Dir, Gunnery Department, 3 Jan 02, Doc II-24; Email msg, subj: FACCC, 26 Feb 02; MAJ Stephen P. Wertz, "Restructuring Gunnery in the Captains Career Course," Field Artillery, Nov-Dec 01, pp. 38-39, Doc II-25.

Combined Arms Leaders Course and Combined Arms Battle Command Course. In the meantime, the high attrition rate of captains that forced lieutenants to become staff officers earlier than ever before and that left fewer branch-qualified captains in units, the introduction of sophisticated command and control systems, the need for shared training among captains of all branches, and the requirement for more hands-on training, among other things, encouraged TRADOC to reexamine its existing CCC to ensure that it met the requirements of the current and future operational environment.[16] On 1 November 2000 at a Senior Leader Institutional Transformation Conference, the Commanding General of TRADOC, General John N. Abrams, emphasized the need to transform the Officer Education System (OES.) Training had to be restructured to stay abreast of the Transformation of the Army that was underway, had to be integrated across battlefield functionality, and had to be organized around the four major components of command (maneuver, maneuver support, maneuver sustainment, and battle command).[17] Although some service school commandants were reluctant to relinquish any of their current branch responsibilities to one of the four proposed centers where select functions would be consolidated, the TRADOC Chief of Staff, Major General John B. Sylvester, warned, "If these functions do not migrate to Centers, the branches will not transform to a future construct that better underpins The Army Transformation."[18]

Although the details about assimilating training under the four centers were vague in 2000, General Abrams indicated that integrating the Interactive Multimedia Instruction Distance Learning (IMI-DL) version of CAS3 into CCC would be critical and that it had to be accomplished without lengthening the course. Based on a telephone

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[16]Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02, Doc II-26; Briefing, subj: Leader Development Transformation, 8 Nov 01.

[17]2000 USAFACFS ACH, pp. 44-45; Briefing, subj: Leader Development Transformation, 8 Nov 01, Doc II-12.

[18]Memorandum for Commandants, TRADOC Service Schools, subj: Senior Leader Institutional Transformation Conference II (SLITC II) After Action Report, 7 Dec 00, Doc II-47 2000 USAFACFS ACH.

conversation with a U.S. Army Command and General Staff College (USACGSC) representative in January 2001, the Field Artillery School learned that IMI-DL would last four weeks and would be beamed from Fort Leavenworth, Kansas, to all branch schools beginning in FY 2004. Given the course-length constraints, the School would have to cut FACCC by four weeks by removing some technical/tactical instruction. This action would force the elimination of some practical exercises associated with the drive by the Commandant of the Field Artillery School, Major General Toney Stricklin, to make training more rigorous and would tax existing School distance learning classrooms, among other things. Equally as important, scheduling IMI-DL version of CAS3 would have to accommodate all branch schools and would be based upon when the CAS3 could be delivered via distance learning from Fort Leavenworth.[19]

[19]2000 USAFACFS ACH, pp. 44-45; Memorandum for CG, subj: Trip Report -- TRADOC Leader Development Campaign Plan Conference, 17 Oct 01.

Because of scheduling problems with IMI-DL and the results of various studies, the revision of training and education for captains took on a different and more concrete form in 2001 than during the previous year. In May 2001 the Army Training and Leader Development Panel (ATLDP) study conducted in 2000 and 2001 reinforced General Abram's initiative by recommending developing and implementing a new Captains Career Course. Officer education should furnish combined arms training for all captains; should focus on establishing a common Army standard for fighting, leading, and training combined arms units; teach common company command skills; teach battalion- and brigade-level combined arms battle captain skills; furnish hands-on, performance-oriented field and simulation training; and provide captains with opportunities to train with lieutenants and noncommissioned officers. After reviewing the ATLDP study, TRADOC outlined a two-phase Captain OES in October 2001 that made a major departure from the existing CCC with its eighteen weeks of branch-specific training and six weeks of staff training at CAS3. Under the proposed format all captains would attend a two-phase Combined Arms Battle Command Course (CABCC). Distance learning would cover common core subjects, while resident training would teach branch-related subjects and prepare them for command. Immediately following the CABCC, captains would attend the Combined Arms Leader Course (CALC) at Fort Leavenworth to prepare them to serve as staff officers and combined arms leaders. CALC instruction would be divided between distance learning and resident training.[20]

A couple of months later, TRADOC furnished more details about CABCC and CALC. To provide the right training at the right time and to focus training for the next assignment, TRADOC reversed the order of the courses. Rather than attending CABCC first, all captains would attend CALC first. CALC would last five weeks and would prepare captains to function as combined arms leaders and battle staff officers. Two weeks of common core staff training and one week of branch-specific training would be completed through distance learning from the students'

[20]Memorandum for CG, subj: Trip Report -- TRADOC Leader Development Campaign Conference, 1-3 Oct 01, 17 Oct 01; Briefing, subj: Leader Development Transformation, 8 Nov 01.

homestation to achieve a common level of proficiency. Officers in a non-maneuver branch would subsequently attend on a temporary duty (TDY) basis an additional two weeks of resident training at a branch school that would focus on practical application and technical skills. All officers upon graduation from CALC would serve as staff officers.[21]

[21]Interview with atchs, Dastrup with CPT Paul J. Payne, Canadian Army Exchange Officer, FSCAOD, 28 Jan 02, Doc II-27; Briefing, subj: Leader Development Plan OES Workshop, 9-11 Jan 02.

Prior to taking command, captains would attend the three-phase CABCC. Phase one would be conducted through distance learning at the officers' homestation and would focus on combined arms operations and branch-specific tactical and technical training. This would be followed by phase two that would be company-level resident training at a branch school. Following this training, they would go to a Combat Training Center for more practical training. Placing CALC first recognized that officers moved from staff officer positions to command and prepared them accordingly whereas the previous format failed to take career progression into consideration by moving them from CABCC to CALC as did the existing CCC.[22]

Field Artillery Captains Career Course-Distance Learning

As it restructured the Captains Career Course for active component officers, TRADOC started revamping Reserve Component (RC) CPT PME to ensure currency. As of 1998-1999, most reserve component officers attended the FAOAC-RC via Army correspondence courses and one two-week active duty for training (ADT) followed by CAS3 via correspondence courses, eight inactive duty for training (IDT) periods, and one two-week active duty training period. FAOAC-RC, as a result, had serious limitations. It consisted of seventeen Army Correspondence Course Program (ACCP) courses (about two weeks of instruction) and active duty training. Officers worked through the correspondence courses on their own and then reported to the Field Artillery School for active duty training. However, the correspondence program, developed years ago, was obsolete and provided limited training value because the students arrived at the School unprepared and required a significant amount of refresher training. Essentially, this turned the two-week active duty training period into a two-week "fire hose" course to disseminate information.[23]

To avoid these striking deficiencies Army Reserve (AR) and Army National Guard (ARNG) captains could attend the

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[22]Interview with atchs, Dastrup with Payne, 28 Jan 02; Email with atch, subj: AFSB State of the Union, 25 Jan 02, Doc II-28; Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02.

[23]2000 USAFACFS ACH, p. 42; Interview, Dastrup with LTC Scott Dallam, Deputy Assistant Commandant (DAC) for Army National Guard (ARNG) Office, 11 Jan 02, Doc II-29.

resident course. Unfortunately, too many AR and ARNG captains could not attend the resident Field Artillery Captains Career Course (FACCC) or its predecessor, Field Artillery Officer Advance Course (FAOAC), because their employers would not release them from their civilian jobs for eighteen weeks.[24]

[24]2000 USAFACFS ACH, pp. 42-43.

Given the restrictions of FAOAC-RC and the inability of AR and ARNG officers to attend resident instruction at Fort Sill, the Field Artillery School redesigned the course in 1998-1999 to eliminate the deficiencies and to support TRADOC's three-phase RC CPT PME effort.[25] After months of work that received endorsements from TRADOC and National Guard Bureau officials, the School produced a strategy for FACCC-DL that would take the student two years to complete as directed by a TRADOC memorandum on Interim Policy for Total Army Training System Course Redesign, Development, and Management of 6 March 1998. As outlined in a draft plan, the course would be divided into three phases and would consist of asynchronous (self-paced), synchronous (group), and resident training. Asynchronous instruction (Phase IA) would employ communications technologies, such as email, multimedia data bases, and virtual libraries; would consist of common core and branch specific subjects; would be performed at the officer's own pace and location under the supervision of a course manager/instructor to provide assistance as required; and would be completed during the first Total Army Training System (TATS) year. Phase IB would consist of both asynchronous and synchronous instruction; would employ communications technologies, such as desktop video teleconferencing, to enable live, real-time interaction between instructors and students; and would be completed during the first six months of the second TATS year. Both methods would use web-based, Internet-delivered methodologies and would employ a Field Artillery small group leader to monitor student progress, provide assistance, and answer questions. Phase II would be done during the second six months of the second TATS year with multiple ADTs being conducted based upon the number of students, who had successfully completed Phase I. The two-week ADT would focus on application-driven exercises and would culminate with the CAPSTONE JANUS exercise. Phase III would be CAS3 that would consist of eight IDTs and a two-week ADT. This three-phase FACCC-DL format would better prepare reserve component officers for duties as fire support officers at maneuver battalion and brigade level and as staff officers at field artillery battalion, division artillery, and field artillery brigade levels, and battery command.[26] Upon full implementation of

[25]Ibid.

[26]2000 USAFACFS ACH, pp. 43-44; Interview, Dastrup

Phase IA in FY 2002, FACCC-DL would replace FAOAC-RC, would improve training, would be more intensive and challenging than FAOAC-RC, and would produce a more tactically and technically competent officer.[27]

Beginning in October 2000 and continuing into late 2001, the Field Artillery conducted a pilot FACCC-DL course. Twenty-four students started Phase IA asynchronous instruction with only ten completing the phase by September 2001. Those who completed Phase IA moved into Phase IB in October 2001 and would advance into the two-week resident phase in 2002 that focused on gunnery and fire support training. For the most part, the School and students concluded that the pilot course was successful with only a few adjustments required for the regular course that was implemented in October 2001.[28]

Field Artillery Precommand Course

In 2001 the U.S. Army Field Artillery School (USAFAS) with the Fire Support and Combined Arms (FSCAOD) having proponency conducted a two-week Pre-Command Course (PCC) for future battalion and brigade commanders that was followed by a three-week Pre-Command Course at the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas. The Field Artillery School's PCC provided future commanders with a broad update of field artillery and fire support issues; updated them on the latest doctrine and tactical, techniques, and procedures; supplied opportunities for discussions with subject matter experts, former commanders, and peers; and offered them an opportunity to enhance their warfighting skills. Future commanders also participated in video tele-conferences with the National Training Center, the Joint Readiness Training Center, and the Battle Command Training Program; examined the expectations of maneuver commanders; sat on a battalion command panel; received fire direction updates; and

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with Dallam, 11 Jan 02; Fact Sheet, subj: Information on FACCC-DL, Jan 02, Doc II-30.

[27]2000 USAFACFS ACH, pp. 43-44.

[28]Interview, Dastrup with Dallam, 11 Jan 02; Fact Sheet, subj: Information on FACCC-DL, 11 Jan 02; Email msg with atch, subj: AFSB State of the Union, 25 Jan 02; Email msg with atch, subj: FACCC-DL, 20 Feb 02, Doc II-31.

received information about the master gunner program, the role of the chaplain, the Family Advocacy Program, and risk management procedures, among other subjects.[29]

FIELD MANUAL 6-20
FIRE SUPPORT IN COMBINED ARMS OPERATIONS

[29]Email msg, subj: PCC, 27 Feb 02, Doc II-32; Pre-Command Course, 1 Feb 02, Doc II-32a; Interview, Dastrup with SFC Threats, PCC Manager, FSCAOD, 1 Feb 02, Doc II-33; FA Pre-Command Course Training Schedule 02-02, Doc II-34; FA Pre-Command Course Synopsis, undated, Doc II-35.

Of the field manuals that the Field Artillery School was rewriting during the last years of the 1990s, completing FM 6-20, Fire Support in Combined Arms Operations, which was last published in May 1988, proved to be the most challenging. In 1996-1997 Joint Publication 3.09, Doctrine for Joint Fire Support, generated inter-service debates over definitions and other critical issues. In the meantime, the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas, rewrote FM 100-5, Operations, and introduced new ideas and terms in the manual. Together, Joint Publication 3.09 and the Command and General Staff College effort with FM 100-5 caused work on FM 6-20 to stop in 1997. Writers in Warfighting Integration and Development Directorate (WIDD) in the Field Artillery School had to wait for the other publications to be completed before continuing with FM 6-20 because the field artillery manual had to be in line with the thinking of the other two.[30]

Efforts writing FM 6-20, renamed FM 3.09 in 2000 to parallel the numbering system for joint publications and renamed Doctrine for Fire Support, met with mixed results in 1997-2000. In May 1998 the Joint Chiefs of Staff officially approved JCS Publication 3.09. Meanwhile, a final draft of FM 100-5 was completed in August 1997. Yet, debates over terms and content of FM 100-5 continued into 1999 to prevent Department of the Army approval of FM 100-5 and forced another major rewrite of the field manual to be done in 1999. Because FM 6-20 was dependent upon FM 100-5, the Field Artillery School had to wait for further writing until the latter would be completed in 2000. The Field Artillery School started writing on FM 3.09 in 2000 because it could not wait any longer for FM 100-5, renamed FM 3.0, Operations, in 2000 to keep it parallel to joint force publication numbering, and had a draft by 2001 for

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[30]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 50.

staffing.[31]

[31]Ibid.; Information Paper, subj: New Numbering System for Fire Support and Field Artillery Manuals, 26 Jun 00, Doc II-36.

As the Army's capstone manual for fire support, FM 3.09 provided the doctrinal tenets for the employment of fire support and established a basis for understanding fire support as an essential element of combat power. Besides addressing traditional fire support issues, such as lethal fires, FM 3.09 outlined briefly a totally new mission for the Field Artillery of integrating and synchronizing lethal and non-lethal fires in support of the commander's intent. Field artillery officers were accustomed to supplying lethal fires, but responsibility for non-lethal effects added a new and revolutionary dimension.[32]

NEW EQUIPMENT TRAINING

Multiple-Launch Rocket System (MLRS) Training

In 2000-2001 the Gunnery Department employed new equipment training teams (NETT) composed of civilian contract instructors and noncommissioned officers to conduct a three-phase training program designed in 1998. Phase one was conducted via distance learning to save time and money. Phase two was taught by NETT instructors at Fort Sill or the unit's homestation during the first annual training period after the unit had converted to MLRS. Phase three was also conducted at the unit's homestation during weekend drills and annual training periods during the second year after conversion with a focus on the unit's ability to fight with the new system.[33]

Budgetary considerations, however, encouraged the Gunnery Department to revamp MLRS new equipment training. Under the existing system, the Department sent NETT instructors on a permanent change of station (PCS) move to the state for two years for phase-two and phase-three training and trained the unit down to the battery level. This format, as a result, was expensive. To reduce costs and personnel turbulence the Gunnery Department sent civilian contractors and soldiers as a team to the state on a temporary duty (TDY) basis in 2000 and 2001 and only trained the unit to the platoon level. By training to this level of command, the Gunnery Department reduced training

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[32]Interview, Dastrup with LTC Joe Woods, Chief, Training and Doctrine Division, FDIC, 28 Feb 02, Doc II-37; FM 3.09 (Extract), p. 2-23, Doc II-38; Email msg with atch, subj: FM 3.09, 4 Mar 02, Doc II-39.

[33]2000 USAFACFS ACH, pp. 53-54

time to eighteen months and saved money.[34]

[34]Ibid., pp. 55-56; Interview with atchs, Dastrup with MAJ Charles H. Akin, MLRS NETT, GD, 17 Jan 02, Doc II-40.

Although the Gunnery Department's MLRS NETTs completed conversion training for C Battery, 2-131st Field Artillery of the Texas Army National Guard and 2-142nd Field Artillery of the Arkansas Army National Guard in 2001, training slowed down in 2001 but became more complicated at the same time. The lack of funding forced the department to slide its three-phase training format conducted by civilian and military teams scheduled for the 1-121st Field Artillery of the Wisconsin Army National Guard and 3-117th Field Artillery of the Alabama Army National Guard from 2001 into 2002 and to increase the number of Army National Guard units trained in 2003 from two to three to get back on schedule. In the meantime, the Army began testing the M270A1 MLRS launcher 2001 for fielding in 2002 with the 2-20th Field Artillery of the 4th Infantry Division at Fort Hood, Texas, scheduled to be the first unit to be equipped with the modernized launcher. The M270A1 would replace the M270 that was in the process of being fielded to the Army National Guard. This basically meant that the Gunnery Department's MLRS NETTs would furnish training for two separate MLRS launchers concurrently for the next several years.[35]

Paladin M109A6 Self-propelled 155-mm. Howitzer New Equipment Training

In 2001 the Gunnery Department faced new challenges with new equipment training for Army National Guard field artillery units receiving the Paladin M109A6 Self-propelled 155-mm. Howitzer. In the midst of fielding the Paladin to the 2-138th Field Artillery of the Kentucky Army National Guard, the 1-178th Field Artillery of the South Carolina Army National Guard, the 1-148th Field Artillery of the Idaho Army National Guard, and the 2-146th Field Artillery of the Washington Army National Guard, New Equipment

[35]Interview, Dastrup with Akin, 17 Jan 02; Email msg, subj: MLRS NETT, 1 Mar 02, Doc II-41.

Training Team (NETT) people from the active component started retiring, and Title 10 AGR Army National Guard instructors began returning to their home states. By the end of 2001, the Gunnery Department had only two Army National Guard instructors and twelve active component instructors.[36]

[36]Interview, Dastrup with MAJ Robert F. Markovetz, Paladin NETT, GD, 23 Jan 02, Doc II-42; Email msg with atch, subj: Paladin M109A6 Self-propelled 155-mm., 19 Feb 02, Doc II-43.

As long as Paladin new equipment training for the Army National Guard was winding down in 2001, the Gunnery Department did not anticipate any problems with the declining number of instructors. A key decision by the National Guard Bureau changed this. Wanting to make its direct support field artillery battalions more mobile so that they could keep up with the maneuver units, the Bureau decided to convert the 1-107th Field Artillery of the Pennsylvania Army National Guard in 2002, the 1-109th Field Artillery of the Pennsylvania Army National Guard in 2003, possibly two California Army National Guard battalions in 2004, and three Texas Army National Guard battalions in 2004-05 to the Paladin from their existing weapon systems -- M109A5 self-propelled 155-mm. howitzer or a towed howitzer. To accomplish this the Bureau had to refurbish Paladins from Initial Brigade Combat Teams being converted to towed howitzers, had to refurbish Paladins from the National Training Center in Fort Irwin, California, and had to build eighteen new howitzers with foreign military sales proceeds.[37]

Given this new scenario, the Gunnery Department suddenly had to extend new equipment training and did not have a sufficient number of instructors to form teams. Aware that normal Army replacement procedures could not eliminate the shortages prior to the August 2002 fielding cycle for the 1-107th Field Artillery of the Pennsylvania Army National Guard, the Department and Paladin NETT had to look to other sources. The Gunnery Department and the Paladin NETT decided to solve the instructor shortfall by using some of the Title 10 AGR personnel from the FY 2001 team. This looked like a promising option, but obtaining the Title 10 instructors presented a difficult problem to solve. Late in 2001, the Department contacted the supervisors (Army National Guard Unit Administrative Officers) of the former Title 10 AGR Paladin NETT instructors and found that many were committed to unit training events and were unable to provide the needed assistance. Fortunately, the Paladin NETT gained several active Army personnel in January and February 2002 to

[37]Memorandum for Dr. Dastrup, Command Historian, subj: Coordination of 2001 USAFACFS Annual Command History, 25 Mar 02, Doc II-43A; Interview, Dastrup with Markovetz, 23 Jan 02; Email msg with atch, subj: Paladin M109A6 Self-propelled 155-mm., 19 Feb 02.

augment the former AGR Title 10 personnel that were available. The Paladin NETT had received permission from the instructors' administrative officers to use them on a TDY basis during August 2002 to assist with converting the 1-107th Field Artillery.[38]

Bradley Fire Support Team Vehicle Fielding and Training

[38]Email, subj: Paladin NETT, 23 Jan 02, Doc II-44; Email msg with atch, subj: Paladin M109A6 Self-propelled 155-mm., 19 Feb 02.

Late in the 1970s, a U.S. Army Training and Doctrine Command (TRADOC) working group, Close Support Study Group II, met to optimize observed fire support for the maneuver forces. Besides reaffirming the necessity of the Fire Support Team (FIST), created in the mid-1970s to integrate fire support with the maneuver arms at the company level, the group recommended fielding a mobile fire support vehicle. Out of this, the BFIST M7 and BFIST A3 evolved over a period of years to replace the M981 Fire Support Team Vehicle (FISTV). M7 fieldings began in 1999; and the A3, the more sophisticated of the two BFISTs, was scheduled to start fielding in 2005.[39]

To support the M7 BFIST fieldings, the Army developed two separate but complementary training programs. One involved new equipment training (NET) furnished by a team from Fort Knox, Kentucky, and the contractor. The NET team trained soldiers in the unit at the time of fielding and was the primary means of initial training.[40]

As this training was getting underway, the U.S. Army Field Artillery School (USAFAS) with the Fire Support and Combined Arms Operations Department (FSCAOD) taking the lead developed institutional training in 1999 and 2000 as the second training program to support fielding the M7 BFIST. Taught for the first time in October 2001, the four-week BFIST operators' course trained soldiers with Military Occupational Specialty (MOS) 13F (Fire Support Specialist) after advanced individual training and before they reported to a BFIST unit and provided additional skill identifier certification. First taught in June 2001, the BFIST commanders' course lasted three weeks, trained sergeants, staff sergeants, and lieutenants, who were not in the BFIST unit at the time of NET, and furnished

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[39]Interview, Dastrup with SFC Timothy W. Crisp, Basic Fire Support Branch, FSCAOD, 22 Feb 02, Doc II-44a; Email msg with atch, subj: BFIST Training, 5 Mar 02, Doc II-45. See 1999 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 143-48. This section provides a good background on the development of the M7 BFIST M7 and the A3 BFIST.

[40]2000 USAFACFS ACH, p. 61; Email msg with atch, subj: BFIST Training, 5 Mar 02; Interview, Dastrup with Crisp, 22 Feb 02.

additional skill identifier/specialty code certification.[41]

COMBAT TRAINING CENTERS AND TRENDS REVERSAL

[41]2000 USAFACFS ACH, pp. 61-62; Briefing, subj: BFIST, 2001, Doc II-46; Email msg, subj: Dates, 16 Dec 01, Doc II-47; Email msg with atch, subj: BFIST Training, 5 Mar 02.

On 15 January 1999 the Deputy Commanding General for Combined Arms at the U.S. Army Training and Doctrine Command (TRADOC), Lieutenant General William M. Steele, held a conference with officials from the combat training centers (CTC) at Fort Leavenworth, Kansas, to discuss negative trends or problems across the battlefield operating systems. To his dismay General Steele learned that the existing trends or problems, which consistently challenged unit operations and warfighting capabilities during their training rotations at the Combat Training Centers (CTC), were the same ones that had been identified when he was at the National Training Center (NTC), Fort Irwin, California, some ten years earlier, and had not been eliminated. He then asked the commander of the NTC about the lack of progress, and he responded that TRADOC's service schools were not on board and helping to eliminate the problems. Prompted by this, General Steele tasked the Center for Army Lessons Learned (CALL) at Fort Leavenworth in February 1999 to initiate a negative trends reversal program that would identify, track, and reverse negative performance trends and that would assist proponent schools to identify, develop, and implement doctrine, training, leader development, organization, materiel, and leader (DTLOMS) solutions. This effort led to the focused rotation concept with a two-fold purpose. First, a focused rotation would help to confirm the existence of a problem or further define the issue. Second, it would measure the effectiveness of a proponent's solution.[42]

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[42]1999 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 87-90; Briefing, subj: TRADOC Trends Reversal Program, 2001, Doc II-47a; Briefing, subj: JRTC 01-06 Focused Rotation Workshop, 14-16 Feb 01, Doc II-47aa; COL Leonard G. Swartz, "Training to Reverse CTC Negative Trends: Getting Fires Back into the Close Fight," Field Artillery, Feb

02, pp. 12-14, Doc II-48.

As General Steele pointed out in 1999, the Project Warrior Program initially began in 1989 with a memorandum of understanding among the Combined Arms Training Activity (CATA), the U.S. Army Total Army Personnel Command (PERSCOM), and TRADOC held the key to the success of the trends reversal program. The memorandum of understanding outlined spreading the expertise of the observers/controllers at the combat training centers to the rest of the force by assigning them to TRADOC service schools as instructors or doctrine writers where they could directly influence writing doctrine and teaching soldiers. Although the second memorandum of agreement of 1993 among CATA, PERSCOM, and TRADOC was unsigned, the Field Artillery assigned Project Warrior officers with CTC experience and certification to FSCAOD in the Field Artillery School in 1999, 2000, and 2001 as instructors or doctrine writers in keeping with the spirit and intend of the Project Warrior Program and with understanding that they were vital to the success of the trends reversal program and that they provided the Army with subject matter experts to train soldiers and instructors at the schools and to write doctrine.[43]

Within two years after being reinvigorated and showing promise, the Project Warrior Program ran into problems. As of late 2001, the School had only four Project Warrior officers and no noncommissioned officers in FSCAOD. Further, three of the four officers were scheduled to depart Fort Sill in May or June 2002; and none were programmed to replace them. From the perspective of FSCAOD, the reduction in the number of Project Warrior officers would hinder negative trends reversal program and the dissemination of lessons learned to students.[44]

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[43]1999 USAFACFS ACH, pp. 87-90; Memorandum for Director, FSCAOD, subj: Coordination of 2001 USAFACFS Annual Command History, 14 Mar 02, Doc II-48a.

[44]Briefing, subj: Trends Reversal Program, 2001, Doc

II-49.

In 2000-2001 the Field Artillery School, meanwhile, developed a strategy to improve the integration of fires with maneuver, a negative trends reversal identified by CALL. First, FSCAOD worked with one light and one heavy brigade combat team and its supporting field artillery unit to enhance their home-station training in preparation for a focused rotation at a CTC. Second, FSCAOD developed training support packages (TSP) that could be exported from the School via the Internet and other means in cooperation with other School departments to improve home-station training.[45] Specifically, FSCAOD employed distance learning, articles in the Field Artillery, and mobile training teams to improve home-station training so that the unit would be prepared when it arrived at a training center and so that negative trends could be reversed. In "Schoolhouse Help for Home-Station Training," Field Artillery, March-April 2000, Master Sergeant (Retired) Henry J. Koelzer, who was chief of the Unit Training Branch in the Warfighting Integration Development Directorate (WIDD) in the Field Artillery School, explained that Standard Army Training System (SATS) software provided the means to improve home station training and distance learning. By using SATS, which most units already employed, units could import database files that contained mission training plans (MTP), soldier training publications (STP), and combined arms training strategies (CATS). CATS performed much of the critical planning for many training events, outlined tasks trained in specific events and the resources required, including estimates for fuel and ammunition consumption, gave the commander an overview of a complete training strategy, and permitted him to access the lessons of other commanders. A unit training plan began with selecting a set of tasks to train. When a unit imported an MTP into its SATS database, it not only received the collective task data but also obtained individual tasks that supported them. The unit could then tailor the training to meets its needs. The TSP represented the ultimate training tool by giving the commander everything required to plan a training event in a few days rather than in weeks. Ultimately, the digital tools would support quality training, helping to guarantee the future effectiveness of the force and to

[45]Swartz, "Training to Reverse CTC Negative Trends," pp. 12-14; 1999 USAFACFS ACH, pp. 87-90.

prepare for the combat training centers.[46]

Written by Lieutenant Colonel Gary H. Cheek, a senior fire support trainer at the NTC, "Training for the NTC," in the March-April 2000 issue of Field Artillery, complemented distance learning. To overcome some of the deficiencies of field artillery units at the NTC, he outlined fixes to improve home-station unit training and to enhance performance at the NTC against the highly-trained opposing force.[47]

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[46]MSG (Ret) Henry J. Koelzer, "Schoolhouse Help for Home-Station Training," Field Artillery, Mar-Apr 00, pp. 44-45, Doc II-50; Swartz, "Training to Reverse CTC Negative Trends," pp. 12-14.

[47]LTC Gary H. Cheek, "Training for the NTC," Field Artillery, Mar-Apr 00, pp. 10-15, Doc II-51.

Mobile training teams furnished the third means of improving home-station unit training. Prior to an NTC or JRTC focused rotation, FSCAOD dispatched a team of experts to the unit during its training exercises where they presented instruction, conducted seminars, assisted in hands-on training, and served as observers/controllers for the commanders. Late in 2000 and early in 2001, for example, FSCAOD organized a combined arms mobile training team of eight personnel led by the Director of FSCAOD, Colonel Leonard G. Swartz, to train the 2-15th Field Artillery of the 10th Mountain Division that was scheduled for a JRTC rotation in April 2001. Through visits to the unit's homestation at Fort Drum, New York, and video-teleconferences, the team provided trends information and lessons learned. FSCAOD also dispatched an assessment team to the unit's focused rotation in April 2001 to gather information through after action reviews. FSCAOD, in the meantime, replicated this training effort with the 1-10th Field Artillery and the 1-39th Field Artillery with the 3rd Infantry Division (Mechanized) to improve their home-station unit training prior to a focused rotation at the NTC in June 2001 and to collect lessons learned.[48]

Following the two focused rotations in 2001, key lessons emerged quickly. First, FSCAOD observed that the Project Warrior Program was a key to success. Project Warrior personnel gave trends reversal credibility because they had served tours of duty at the NTC or JRTC as observers and were familiar with the terrain and the training systems at the training centers. Second, home-station unit training had to focus on trends reversal subjects in order to prepare the unit for training at the NTC or JRTC. Third, the mobile training teams had to conduct after action reviews after the rotations to solicit information to improve the current trends reversal program. Fourth, as far as FSCAOD was concerned, home-station unit

[48]Briefing, subj: COG Inbrief, Fire Support Focused JRTC Rotation 01-06, 2001, Doc II-52; Briefing, subj: Trends Reversal Model, 2001; Briefing, subj: Fire Support Focused Rotation, COG Inbrief, NTC, 3-16 Jun 01, Doc II-53; Briefing, subj: Hammer Crunch Fire Support AAR, 23 Feb 01, Doc II-54; Memorandum for Cdr, 1-10 FA, subj: 3/3 ID Hammer Crunch Take Home Packet, 26 Feb 01, Doc II-55; Swartz, "Training to Reverse CTC Negative Trends," pp. 12-14.

training conducted by mobile training teams heavy with Project Warrior noncommissioned officers and officers provided the key to success at the combat training centers and to the trends reversal program.[49]

CHAPTER THREE
COMBAT DEVELOPMENTS:
FORCE DESIGN, DOCTRINE, AND REQUIREMENTS

INTRODUCTION

During 2001, the U.S. Army Field Artillery School pursued key initiatives to make the Field Artillery more lethal, deployable, and responsive to meet future battlefield requirements. To do this the School participated in the Transformation of the Army effort; refined its fire support modernization plan; developed doctrine, tactics, techniques, and procedures; and made significant progress towards introducing new equipment and

[49]Memorandum for Record, subj: AAR of JRTC Fires Focused Rotation 01-06, 1 May 01, Doc II-56; Briefing, subj: Trends Reversal Model, 2001; Briefing, subj: Hammer Crunch Fire Support AAR, 23 Feb 01; Briefing, subj: COG Inbrief, JRTC Rotation 01-06, 2001; Briefing, subj: Fire Support Focused Rotation, COG Inbrief, NTC, 3-16 Jun 01.

weapons.

FORCE DESIGN AND DOCTRINE

Transformation of the Army

Chief of Staff's and the Army Vision. Upon becoming the Chief of Staff of the Army in mid-1999, General Eric K. Shinseki articulated a clear vision to eliminate the deficiencies to make the Army more suitable to future warfare. In June 1999 the General explained that the Army aspired to be the most respected army in the world and the most feared ground force to those who would threaten the vital interests of the United States. To do this the Army had to improve its strategic responsiveness, had to develop a clear long-term strategy to improve operational jointness, had to implement the goals of Joint Vision 2010, had to produce leaders for joint warfighting, had to complete the full integration of the active and the reserve components, had to staff its warfighting units, and had to provide for the well-being of its soldiers, civilians, and family members.[1]

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[1]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 63-64. See Quadrennial Defense Review Report, 30 Sep 01, Doc III-1, for background on the Transformation of the Army and military forces.

Although each goal was important, General Shinseki focused his energies on strategic responsiveness during the latter months of 1999. From the General's vantage point, the world situation demanded a strategically responsive Army that was capable of operating throughout the range of conflict and that was more versatile, lethal, and survivable than ever before. The Army had to provide early entry forces with the ability to operate jointly without access to fixed forward bases and with the power to slug it out and to win campaigns decisively.[2] Continuing, the General noted, "At this point in our march through history, our heavy forces are too heavy and our light forces lack staying power. Heavy forces must be more strategically deployable and more agile with a smaller logistical footprint, and light forces must be more lethal, survivable, and tactically mobile."[3]

Over the next several months General Shinseki further refined his vision. In August 1999 his Army of the future included lighter, more deployable forces and equipment and involved standing up two Initial Brigade Combat Teams (IBCT) at Fort Lewis, Washington, to serve as a test bed for new ideas, force structure, weapons, and equipment. Testing off-the-shelf tracked and wheeled vehicles that appeared to offer the desirable characteristics would compose a major component of the Initial Brigade Combat Team effort and would give the endeavor a quick start. In a U.S. Army news release of 12 October 1999, the General along with the Secretary of the Army, Louis Caldera, further elucidated his vision. The Army required the capability of deploying a independent combat brigade anywhere in the world within 96 hours, a division within 120 hours, and 5 divisions within 30 days. This meant transforming the Army into a more dominant and strategically responsive force.[4] To this end, General Shinseki told the attendees of the 45th Annual Meeting of the Association of the United States Army (AUSA) on 12 October 1999, "We will begin immediately to turn the entire Army into a full spectrum force which is strategically

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[2]1999 USAFACFS ACH, p. 63.

[3]Intent of the Chief of Staff, Army, 23 Jun 99, Doc III-4, 1999 USAFACFS ACH.

[4]1999 USAFACFS ACH, p. 63.

responsive and dominant at every point on the spectrum of operations."[5] As the Director of the Transformation Axis at Headquarters, U.S. Army Training and Doctrine Command (TRADOC), Colonel Joseph Rodriguez, and the Director of Battle Laboratory Integration, Technology, and Concepts at TRADOC, Colonel Michael Mahaffey, noted in December 1999, General Shinseki wanted to make the heavy forces lighter and the light forces heavier with the objective of erasing the distinction between the two.[6]

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[5]GEN Eric K. Shinseki, Address to the Eisenhower Luncheon, 45th Annual Meeting of the Association of the United States Army, 12 Oct 99, Doc III-11, 1999 USAFACFS ACH.

[6]1999 USAFACFS ACH, p. 64.

From General Shinseki's perspective, the Army had a bifurcated force. It had equipment, such as the M-1 Abrams tank, and divisions that had been designed for the Cold War and that could not go everywhere and had light forces with insufficient lethality or survivability to be placed in the middle of a war. In view of recent combat and contingency operations in the 1990s, the Army required a totally new force structure to handle future war with combat systems with the survivability of the M-1 Abrams tank and the Bradley fighting vehicle but with the deployability of the light forces.[7]

Work on the Vision and the Initial Brigade Combat Team. By the end of 1999, various task forces and study groups throughout TRADOC and the senior Army Planning Group began producing results with the Transformation of the Army. According to a draft working paper of 17 November 1999, the preliminary design for the Initial Brigade Combat Team would rely heavily on superb reconnaissance, surveillance, and target acquisition (RSTA) abilities; would provide immediate improvement to the Army's strategic responsiveness; and would furnish the means for institutional changes across all of the domains of doctrine, training, leader development, organizations, materiel, and soldiers (DTLOMS). The major sub-elements within the Initial Brigade Combat Team would include two motorized, combined arms infantry battalions, each with three combined arms rifle companies and a headquarters company with a reconnaissance platoon and a mortar platoon but excluded organic field artillery, air and missile defense, combat and construction engineers, and military police. As the draft working paper pointed out, embedding these kinds of units in the Initial Brigade Combat Team would be at the expense of responsiveness. If the brigade required such capabilities, they would be furnished augmentation packages to fit the mission. After all, the key requirement focused on strategic and operational deployability; and existing field artillery systems were too heavy to be deployed readily.[8] All equipment, including field artillery, had to fit on a C-130 aircraft. "If it doesn't fit in a C-130, it doesn't go into the brigade,"

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[7] Ibid.

[8] Ibid., pp. 64-65.

Colonel Rodriquez emphasized on 16 December 1999.[9]

[9]Briefing, subj: Status of Brigade Combat Team Development at Fort Lewis and Planned Performance Demonstration at Fort Knox, 16 Dec 99, p. 2, Doc III-12, 1999 USAFACFS ACH; Executive Summary, Initial Brigade Book Volume I (Extract), undated, pp. 4-5, Doc III-15, 1999 USAFACFS ACH.

Yet, the working draft of the Initial Brigade Combat Team organization and early thinking about the brigade structure reflected some ambivalence concerning field artillery. Although field artillery was not included in the working draft of the brigade organization, the designers conceded the requirement for field artillery and projected procuring a medium assault vehicle-based 155-mm. howitzer sometime in the near future. Until this occurred, the brigade would have to rely upon the High Mobility Artillery Rocket System (HIMARS) for counterfire if needed. At a briefing in the Pentagon in December 1999, TRADOC representatives pointed out that they did not know exactly what type of field artillery would be an organic part of the brigade in the future. For now, the Initial Brigade Combat Team would not have field artillery because it was too heavy and would detract from deployability. Yet, omitting field artillery would be risky. Mortars simply could not handle indirect fire support requirements.[10]

An analysis by the Field Artillery School prompted reconsidering the fire support organization in the Initial Brigade Combat Team. In December 1999 the School pointed out in stark terms the vulnerability of the Initial Brigade Combat Team to counterfire and the unacceptable high casualties that it would take without organic fire support beyond organic mortars. Based upon the School's careful scrutiny, TRADOC revamped fire support in the Initial and Interim Brigade Combat Teams early in January 2000. TRADOC made fire support teams and sections organic to the maneuver force in both of the brigade combat teams. According to the Field Artillery School, the outlined fire support organization of organic mortars and HIMARS for the Initial and Interim Brigade Combat Teams would increase the volume of fire, would provide close support and the ability to furnish proactive and reactive counterfire, and would

[10]Ibid., p. 65.

furnish shoot and scoop capabilities without sacrificing strategic and operational mobility.[11]

[11]2000 USAFACFS ACH, p. 70.

Placing HIMARS in the Initial Brigade Combat Team assumed considerable risk and led to a crucial decision in March 2000. As of February 2000, the Army had only three prototype HIMARS located at Fort Bragg, North Carolina, and one demonstration HIMARS at the factory in Dallas, Texas, and could expect the first production systems in 2002 at the earliest. This essentially meant that there would not be any field artillery in the Initial Brigade Combat Team. Faced with this situation, the Field Artillery School proposed substituting the towed M198 155-mm. howitzer for HIMARS in the Initial Brigade Combat Team. At the School's recommendation General Shinseki on 3 March 2000 decided to use the M198 because of the decision to use off-the-shelf equipment and because of the requirement for organic field artillery in the Initial and Interim Brigade Combat Teams. As outlined in April 2000, M198 battalion assigned to the first Initial Brigade Combat Team would provide direct support, would deploy within the first ninety-six hours for a small scale contingency (SSC) and also a major theater war (MTW), and would consist of three firing batteries of four howitzers each for a total of twelve weapons, a headquarters and headquarters battery, a target acquisition platoon of Q-36 and Q-37 radars, and a medical platoon.[12]

[12]Ibid., pp. 69-70; "Army: Lightweight Howitzer the Only Viable Option for Brigade Team," Inside the Army, 30 Jul 01, pp. 1, 7, Doc III-2.

Base upon subsequent analysis, the Army revised its plans to equip the Initial Brigade Combat Team with more modern technology than the M198. Although it maintained that an Interim Armored Vehicle-(IAV) based self-propelled howitzer would be the ideal choice and continued to retain the requirement for such a howitzer in the Interim Brigade Combat Team, the Army decided to replace the M198 with the towed Lightweight 155-mm. howitzer (LW 155) that was under development as a joint program with the U.S. Marine Corps in the Initial Brigade Combat Team. Circumstances forced the Army to reverse an earlier decision that had rejected the LW 155 because it lacked the agility of a self-propelled howitzer and because it was not designed to fit on a C-130 with its prime mover. However, using the LW 155 would be consistent with the Army's desire to employ off-the-shelf or near off-the-shelf equipment that would be available and would facilitate a transition to the IAV self-propelled howitzer that would be in the Interim Brigade Combat Team. The LW 155 would possess mobility and survivability equal to the maneuver force and would provide the lethality, precision target acquisition, precision engagement, and extended range to furnish responsive and accurate fires to support the Interim Brigade Combat Team through the battle space. Employing the M198, however, forced the Army to limit the number of howitzers in the Initial Brigade Combat Team to twelve divided into three four-howitzer batteries because the M198 was so heavy that only twelve could be handled. In comparison, a LW 155 howitzer battalion would have eighteen weapons divided into three six-howitzer batteries because the weapon would be lighter.[13]

To enhance the operational and organizational effectiveness of the field artillery battalion, TRADOC made the Fires and Effects Coordination Cell (FECC), which was an emerging operational, organizational, and doctrinal concept in the Army central to the direct support role. Historically, field artillerymen planned their fires based upon the availability of organic or assigned indirect fire support systems to support the maneuver force. As such, fire support planning focused more on positioning and allocating weapon systems, munitions, and servicing targets

[13]2000 USAFACFS ACH, pp. 70-71; "Army: Lightweight Howitzer the Only Viable Option for Brigade Teams," Inside the Army, 30 Jul 01, pp. 1, 7.

rather than achieving particular effects. The development of precision munitions, better non-lethal capabilities, increased ranges, and advances in communications led to orienting fire support around effects and not around the delivery systems. At the brigade level the FECC would perform the traditional functions of the fire support element and would obtain guidance from the commander about the desired effects. It would then plan, prepare, and direct the execution of the desired effects utilizing organic and non-organic means. Unlike the existing fire support element, the FECC would provide expanded access to joint assets; would perform a proactive counterfire function; and would furnish an ability to plan, coordinate, and employ lethal and non-lethal effects with the latter being a critical capability that existing fire support elements did not have.[14]

[14]2000 USAFACFS ACH, p. 72; IBCT Organizational and Operational Concept (Extract), 30 Jun 00, Executive Summary, Doc III-3.

As the Army restructured its fire support, it also developed the mission and organization of the Initial Brigade Combat Team combat team in 1999-2000. Besides being a full-spectrum, early-entry combat force with organic field artillery, the Initial Brigade Combat Team would be a divisional brigade with the mission of being the first-to-deploy brigade, would have the capability of beginning operations upon arrival at the aerial port of debarkation, and would be pre-configured in ready-to-fight combined arms packages. As Colonel Mahaffey of TRADOC explained, the ready-to-fight combined arms packages would be more effective than employing the traditional division-slice approach to deployment. Such a combined arms package organization would enhance unit cohesion and maximize combat effectiveness. Moreover, when it was deployed as part of a light division, the brigade would extend the tactical mobility available to the commander and increase tactical firepower for small scale contingencies (SSC) or stability and support operations (SASO).[15]

In the midst of this planning effort, the Army stood up its first Initial Brigade Combat Team. After beginning the process of reorganizing and reequipping in April 2000, the 3rd Brigade, 2nd Infantry Division, the first of two brigades to be transformed into an Initial Brigade Combat Team, conducted a Battle Command Post Training (BCPT) Warfighter Exercise in September 2001 to determine the strengths and weaknesses of the new organization. Although it had been constituted from a traditional light brigade, the 3rd Brigade demonstrated warfighting competency, the ability to perform as a unit, and the basic soundness of the Initial Brigade Combat Team concept during the exercise. A simulation, the exercise placed the unit in a Balkan environment against a modern, conventional adversary augmented with special forces and an associated terrorist group. According to the Commanding General of I Corps and Fort Lewis, Lieutenant General James Hill, commanders, and soldiers, the Initial Brigade Combat Team still required refinement. Communications needed to be upgraded, and the brigade demanded better intelligence systems. On the positive side, General Hill and others agreed that the Initial Brigade Combat Team had another year to work out

[15]2000 USAFACFS ACH, p. 73; Briefing, subj: IBCT Organizational Concept, 12 Jan 01, Doc III-4.

the kinks before reaching its targeted operational date.[16]

[16]"Army's First IBCT Exceeds Expectations During Warfighter Exercise," Inside the Army, 15 Oct 01, pp. 1, 11, 12, 13, Doc III-5; "BCT More Difficult for Enemy Forces, but OPFOR Finds Some Holes," Inside the Army, 15 Oct 01, p. 12, Doc III-5; COL Steven L. Bailey, "Fires for the IBCT," Field Artillery, Nov-Dec 01, pp. 5-8, Doc III-6; "Army Officially Begins Transformation to Initial Brigade Combat Team," Fort Lewis Press Release, 13 Apr 00, Doc III-7; Briefing, subj: IBCT Organizational and Operational, 8 Jan 02, Doc III-8.

During that Warfighter command post exercise of September 2001, the 1-37th Field Artillery tested new concepts and organizations, such as the FECC. As an integral part of the tactical operational center, the FECC particularly impressed field artillerymen and other participants. Throughout the exercise the FECC managed a multitude of tasks and activities necessary to achieve the commander's desired effects on the target. The FECC had a lethal effects section, a targeting/counterfire section, and a non-lethal effects section and planned and synchronized full-spectrum fires in support of operations.[17] Although the FECC offered much promise, General Hill pointed out that it needed "tweaking" and questioned the ability of the field artillery battalion commander to operate the FECC once the field artillery started shooting because at that time the commander became intimately involved in lethal fires and the rest of the FECC's mission assumed less importance.[18] Along the same lines the Deputy Commanding General for Training at the U.S. Army Field Artillery School, Brigadier General William F. Engel, wrote, "Although the total integration of lethal and nonlethal effects presented challenges in the Warfighter exercise, this concept [FECC] appears to be valid. I feel confident the FECC will solidify its value in the future."[19] The Commandant of the Field Artillery School, Major General Michael D. Maples, commented in December 2001, "The insights derived from the IBCT fires and effects coordination cell's . . . coordination of both lethal and nonlethal strikes ultimately will help us transform into a responsive networked means to deliver the effects required

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[17]"Fires for the IBCT," Field Artillery, Nov-Dec 01, pp. 5-8, Doc III-8a; LTC Henry S. Larsen III and MAJ Michael T. Walsh, "Transforming Fire Support for the IBCT," Field Artillery, Mar-Apr 01, pp. 7-11, Doc III-9; LTC Henry S. Larsen III and MAJ William I. Fox III, "Transforming the FA Battalion for the IBCT," Field Artillery, Mar-Apr 01, pp. 12-15, Doc III-10.

[18]"Army's First IBCT Exceeds Expectations During Warfighter Exercise," p. 11.

[19]BG William F. Engel, "Transforming Fires for the Objective Force," Field Artillery, Nov-Dec 01, p. 10, Doc III-10a.

for dominant maneuver."[20] Besides this, the 1-37th Field Artillery pointed out the pressing requirement for proactive counterfire for the Initial Brigade Combat Team because it was lighter and more deployable than existing forces and demanded better protection. As a result, the brigade constantly focused on proactive counterfire by exploiting its targeting assets and the FECC's capabilities to manage lethal effects during the exercise. Although the Warfighter command post exercise of September 2001 pointed out some deficiencies, the Initial Brigade Combat Team passed the test and displayed its promise.[21]

Legacy, Interim, and Objective Forces. Early on in the transformation process, the Army outlined making the Initial Brigade Combat Team a part of a three-phase developmental program. Fielded between 2000 and 2003, the two selected brigades at Fort Lewis would comprise the initial brigades, would be the prototypes for others to follow, and would be equipped with off-the-shelf equipment, including vehicles, and equipment, some of which was already in the Army's inventory and could be adapted to meet existing requirements. The initial brigades would also be retrofitted with the Interim Armored Vehicle (IAV)

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[20]MG Michael D. Maples, "Transformation: The Way Ahead," Field Artillery, Nov-Dec 01, p. 1, Doc III-10aa.

[21]CPT Kevin E. Finch, LTC Henry S. Larsen III, and CPT Vincent J. Bellisario, "Counterfire for the IBCT," Field Artillery, Nov-Dec 01, pp. 14-18, Doc III-11.

upon fielding to become part of the Interim Force.[22] As TRADOC Deputy Chief of Staff for Combat Developments, Major General Dan Zanini explained late in 1999, the Interim Force would be equipped with the medium assault vehicle technology, would follow the initial brigades, and would be fielded between 2003-2010. Next, the Army would field the Objective Force that would be based upon breakthrough technologies and would be fielded beginning in 2008. According to the Transformation Campaign Plan of 2000, the complete conversion of the Army to the Objective Force would be around 2032.[23]

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[22]2000 USAFACFS ACH, pp. 67-68; US Army Posture Statement for FY01 (Extract), Chapter Two, Doc III-12; Briefing, subj: Equipping the Brigade Combat Team, 21 Jun 00, Doc III-13.

[23]2000 USAFACFS ACH, p. 68.

Although the three phases (initial, interim, and objective) remained prominent, a three-axis strategy -- the Legacy Force, the Interim Force, and the Objective Force -- to transform the Army into the Objective Force crystallized during 2000-2001.[24] At a briefing in November 2000, General Shinseki explained that the Army had started phase one in 1999. During this phase, the Army would field two Initial Brigade Combat Teams at Fort Lewis to validate an organizational and operational model for the Interim Brigade Combat Teams that would follow and would concurrently maintain a focus on warfighting readiness to execute national military strategy. This latter objective involved modernizing and recapitalizing select current capabilities in the existing force, commonly called the Legacy Force of heavy and light forces organized and equipped during the Cold War. Modernizing centered on developing new systems with improved warfighting capabilities, while recapitalizing involved the rebuilding and the select upgrading of nineteen currently fielded aging systems. While rebuilding would restore a system to a like-new condition, upgrading would restore a system to a like-new condition and simultaneously add improvements to address capability shortcomings. As General Shinseki noted, the modernization and the recapitalization of the Legacy Force would also extend Army capabilities into the future by returning selected systems to like-new condition and by introducing new systems and would guarantee near-term fighting capabilities. General Shinseki added in mid-2001 that the Division Capstone Exercise Phase I of April

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[24]Information Paper, subj: AUSA Tranform Panel Briefing, 26 Oct 00, Doc III-14.

2001 with two digitized brigade task forces from the 4th Infantry Division at the National Training Center, Fort Irwin, California, demonstrated the warfighting capabilities of the Legacy Force that had been modernized and recapitalized and its vital role in the Transformation of the Army.[25]

[25]Briefing, subj: Recapitalization of the Legacy Force, 17 Oct 00, Doc III-15; Briefing, subj: Army Transformation, 17 Oct 00, Doc III-16; 2001 Army Modernization Plan (Extract), Executive Summary, pp. 11, 24, Doc III-17; Testimony, General Shinseki before Senate Armed Services Committee, 10 Jul 01, Doc III-18; Information Paper, subj: CSA Remarks at AUSA Seminar, 8 Nov 01, Doc III-19.

Other Army officers shared the same basic conclusions about the Legacy Force as demonstrated in the Division Capstone Exercise Phase I. Although some of the systems were not available yet and although some deficiencies still existed, the Division Capstone Exercise Phase I validated modernizing and recapitalizing select Legacy Forces units. Digitization played an especially critical role in the process by permitting soldiers to move over a battle space that was larger than the Army of Excellence's battle space in the 1990s and by allowing officers to leverage information. In a briefing on 21 April 2001, the Commander of the 4th Infantry Division Artillery, Colonel Ben Allen, noted that digitization provided situational awareness. The 4th Infantry Division always knew where it was in relation to the enemy and could exploit that information. Ultimately, the exercise illustrated the importance of information dominance furnished by command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems and equally as critical foretold the role that C4ISR could play in the Transformation of the Army.[26]

As the Assistant Commandant of the Field Artillery School, Brigadier General William F. Engel, pointed out in the November-December 2001 edition of Field Artillery, the III Armored Corps would comprise the Legacy Force and would be the Army's hedge during the transformation process. The III Armored Corps divisions, the armored cavalry regiment, and the associated corps slices would receive priority for modernization material. The Army would field the Crusader and the M270A1 MLRS launcher to these units, even though most Legacy Force units would remain Paladin and M270 MLRS

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[26]U.S. Army Public Affairs Office Information Paper, subj: Power of Digitization Proves Worth During Army Force on Force Exercise, 18 Apr 01, Doc III-20; Information Paper, subj: 4th ID Shows Info Superiority at Division Capstone Exercise, 20 Apr 01, Doc III-21; Briefing (Extract), subj: DCX I Observations, 25 Apr 01, Doc III-22; American Forces Information Service, "Digital World Meets Combat During Desert Exercise," 18 Apr 01, Doc III-22a; TRADOC News Service, "Army Demonstrates Information Superiority at DCX," 16 Apr 01, Doc III-22aa. See Division Capstone Exercise Phase I Initial Insights Memorandum (FOUO), Apr 01, for additional information, Doc III-23.

launcher based.[27]

[27]Engel, "Transforming Fires for the Objective Force," Field Artillery, Nov-Dec 01, pp. 9-13.

Interim Force. With the fielding of the Interim Armored Vehicle (IAV) in the near future, phase two of the transformation would start and would end when the last Interim Brigade Combat Team was fully manned, equipped, and trained. While scientific and technological research and development on the Objective Force would continue, the two Initial Brigade Combat Teams would also be retrofitted with IAVs to become Interim Brigade Combat Teams and would join four interim brigades, including an Army National Guard brigade, in the Interim Force to bridge the gap between the Legacy Force and the Objective Force. These units would complement the Legacy Force, would be designed to maximize lethality and survivability while increasing tactical, operational, and strategic maneuver. They could be placed anywhere in the world within ninety-six hours of liftoff, could complement light or mechanized forces in a major regional contingency operation, and could be integrated easily into the Interim Division scheduled for fielding in 2005.[28]

Given the Interim Brigade Combat Team's capabilities to participate in the full spectrum of conflict ranging from a major theater war to small scale contingency in an urban/close terrain setting and its core capabilities of high tactical mobility and robust dismounted assault, it would be organized as a combined arms, mounted infantry organization and would have self-contained organic capabilities with the ability to reach throughout the battlespace if required. Major sub-elements would include three motorized, combined arms infantry battalions with organic mortar companies; a RSTA squadron; an anti-tank company; a field artillery battalion of three firing batteries, a target acquisition platoon, a headquarters and headquarters battery, a meteorological section, and a survey team (a meteorological section and a survey team); an engineer company; a brigade support battalion; a military intelligence company; a signal company; and a brigade headquarters and headquarters company. Recognizing the brigade's vulnerability to sustain unacceptable levels of casualties when targeted by enemy indirect fire systems,

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[28]2001 Army Modernization Plan (Extract), pp. 10-21; Information Paper, subj: AUSA Transform Panel Briefing, 26 Oct 00; Briefing, subj: Interim Force, 17 Oct 00, Doc III-24; Email msg with atch, subj: LegIntObj2, 1 Apr 02, Doc III-24a.

its field artillery would have a FECC to coordinate non-lethal and lethal fires and would focus on conducting responsive, proactive counterbattery fires. Because the IAV-based self-propelled 155-mm. howitzer would not be available, the Army initially planned to equip the Interim Brigade Combat Team's field artillery battalion with twelve M198 howitzers divided into three batteries of four howitzers each. The LW 155 that was under development would subsequently replace the M198 around 2005, would be organized into a battalion three batteries of six cannons each, and would eventually be supplanted by the IAV-based self-propelled 155-mm. howitzer. These weapons, especially the IAV-based howitzer, the Firefinder Radar Q-47, and other field artillery systems would possess the mobility and survivability that would be equal to the maneuver force and would furnish lethal, precision fires and force protection.[29]

[29]Interim Brigade Combat Team Organizational and Operational Document (Extract), Jun 00, Chapter 3, pp. 19-20, Chapter 8, pp. 1-12; Briefing (Extract), subj: Field Artillery Futures Update, 2002, Doc III-25; Email msg with atch, subj: LegIntObj2, 1 Apr 02.

As work on the Interim Brigade Combat Team moved forward, the force structure of the Interim Division began taking shape in 2000-2001. As a draft organizational and operational plan of early 2001 outlined, the Interim Division would provide the joint force commander with a strategically responsive, early entry ground force that would be optimized for offensive operations and that could support operations in any operational environment, such as a major theater of war or small scale contingency.[30] Equipped with IAVs, the Interim Division would be organized around three brigade combat teams with the capability of closing with and destroying enemy forces through fire and maneuver and with organic mortars, one air cavalry brigade, a division artillery of three battalions of eighteen LW 155 guns and one battery of nine HIMARS, one engineer regiment, and one division maneuver sustainment brigade. Division troops would consist of a military intelligence battalion, a signal battalion, and an air defense battery. This design placed field artillery in the division to provide the full spectrum fires and effects and permitted the habitual association of direct support battalions with ground maneuver battalions or brigades to facilitate the combined arms requirements of the brigade teams, while the long-range capabilities of HIMARS would allow the division commander to conduct shaping and counterfire at the

[30]Interim Division Organizational and Operational Plan, Feb 01, pp. 1,5, Doc III-26.

division level, to weight the main brigade combat team effort, and to enable decisive operations.[31]

[31]Email msg with atch, subj: LegIntObj2, 1 Apr 02; Briefing, subj: None, 12 Oct 01, Doc III-27; Interim Division Organizational and Operational Plan, Feb 01, pp. 4, 10, 23, 25.

From the perspective of the Army, the Interim Forces would provide operational and strategic advantages. In October 2000 an Army Transformation briefing explained that the Interim Forces -- Interim Brigade Combat Team and Interim Division -- would ensure combat overmatch for American forces until the Objective Force capabilities would be fielded and would not be an experimental force for testing concepts. They would be fully trained, would be ready to deploy, and would provide warfighting capability.[32] The Interim Division would be capable of deploying worldwide within 120 hours with a lead Interim Brigade Combat Team deployed anywhere in the world within 96 hours.[33] Equally important, the Interim Force would fill the gap that existed in 2000-2001 and would give the Army the ability to get forces on the ground quickly with the requisite combat power to influence a potential crisis. Although the Interim Force, including an interim armored cavalry regiment, would fill a capability gap with a highly deployable force, most of the Army would still consist of Legacy Forces through 2010 when the Army planned to start introducing the Objective Force.[34]

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[32]Briefing, subj: Army Transformation, 17 Oct 00.

[33]Briefing (Extract), MRI, Army Transformation and Combat Health Support, 2 Mar 01, Doc III-28.

[34]Information Paper, subj: AUSA Transform Panel Briefing, 26 Oct 00; Memorandum for See Distribution, subj: Army Order of Precedence to Support the Initial Phase of the Army Transformation, 7 Dec 00, Doc III-29; Briefing, subj: Interim Force, 17 Oct 00; Briefing, subj: Army Transformation, 17 Oct 00; 2001 Army Modernization Plan (Extract), pp. 11-20; IAV Mission Needs Statement (Extract), 22 Feb 00, Doc III-30; Information Paper, subj: Messages and Q's and A's for the IBCT Stationing Plan, 11 Jul 01, Doc III-31; Briefing (Extract), subj: MRI, Army Transformation, and Combat Health Support, 2 Mar 01; Email msg with atch, subj: Requirements Review Committee, 27 Mar 00, Doc III-23, 2000 USAFACFS ACH. In July 2001 the Army announced that the next four brigades to be converted to the Initial/Interim Brigade Combat Team concept would be the 172nd Infantry Brigade, the 2nd Armored Cavalry Regiment, the 2nd Brigade, 25th Infantry Division, and the 56th Brigade, 28th Infantry Division of the Pennsylvania Army National Guard. See Memorandum for

See Distribution, subj: Army Order of Precedence to Support the Initial Phase of the Army Transformation, 7 Dec 00; General Accounting Report, subj: Military Transformation, Nov 01, p. 9, Doc III-32; "Army Selects Follow-on Transformation Brigades," Army News Service, 12 Jul 01, Doc III-33; Msg, subj: CSA Sends-The Interim Brigade Combat Team Transformation Schedule, 12 Jul 01, Doc III-33a; "Army Announces Locations of Next Interim Brigade Combat Teams," U.S. Army Public Affairs Office, 12 Jul 01, Doc III-33aa; Information Paper, subj: Army Transformation, 12 Jul 01, Doc III-34.

Objective Force. As the Army explained in 2000-2001, phase three, which was still in the conceptual stage, would begin in 2008-2010 when the first Objective Force brigade-size unit would be fully manned, equipped, and trained to achieve the desired capabilities and would continue beyond 2030. Although fielding the Future Combat System (FCS) with some of them being multi-functional, such as providing direct and indirect fires, would be a critical factor, the Objective Force would not be platform driven but would focus on achieving capabilities and would encompass the entire Army. The Legacy Forces and the Interim Forces would be transformed into the Objective Force over a period of years beginning in the second decade of the twenty-first century. The Objective Force would become the world's preeminent land force for a broad range of missions from support, including Homeland Security, to decisive warfighting at every point on the military spectrum.[35]

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[35]Briefing, subj: Army Transformation, 17 Oct 00; 2001 Army Modernization Plan (Extract), pp. 29-33; White Paper, subj: Concept for the Objective Force, Nov 01, pp. 1-8, Doc III-35; General Accounting Office Report, subj: Military Transformation, Nov 01, p. 9; Information Paper, subj: AUSA Transform Panel Briefing, 26 Oct 00; Engel,

"Transforming Fires for the Objective Force," pp. 9-13. See U.S. Army Transformation Campaign Plan (FOUO), 10 Apr 01, Doc III-36, for more information.

Over a period of months in 2000 and 2001, an operational concept for fighting with the Objective Force unfolded. Although all levels of command remained undefined, two basic conceptual echelons emerged -- unit of employment and unit of action -- by November 2001. Comparable to a division and above organization, a unit of employment would be an offensively-oriented, versatile, multi-dimensional force with the capability of performing a variety of roles and missions. For example, it would perform tasks assigned to Army of Excellence divisions and higher echelons, would link Army ground and joint air forces, and would orchestrate joint campaigns as required. Tailored to the mission, a unit of employment would also resource and execute combat operations; designate objectives; coordinate with multi-service, interagency, multi-national, and non-governmental activities; and employ long-range fires, aviation, and sustainment. The unit would also provide command, control, communications, computers, intelligence, surveillance, and reconnaissance and tactical direction to units of action. A unit of action would have a fixed organization, would be the tactical formation of the Objective Force, and would be comparable to brigade and lower echelons in the Army of Excellence. As the draft November 2001 TRADOC Pamphlet 525-3-91, The Objective Force, outlined, a unit of action would be the smallest combined arms unit that could be committed independently. A unit of action would close with the enemy and destroy it with integrated fire, maneuver, and tactical assault. The core of the unit of action brigade would be four to six combined arms combat battalions.[36]

Late in 2001, the Army envisioned that the Objective Force would be fighting in a new operational environment. The Army's existing force was designed, equipped, and trained to confront an enemy that conducted highly centralized military operations and gained momentum through

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[36]Email msg with atch, subj: LegIntObj2, 1 Apr 02; TRADAOC Pamphlet (Draft) 525-3-91, Objective Force, 6 Nov 01, pp. 1, 2, 3, 4, Doc III-37; White Paper, subj: Concepts for the Objective Force, Nov 01, p. 18; Interview, Dastrup with Sammy Coffman, Dep Dir, Futures Development and Integration Directorate, 12 Mar 02, Doc III-38; Unit of Employment Concept (Draft), 1 Nov 01, pp. 4-5, Doc III-39.

echelonment in maneuver and fires in recognizable formations and groupings of high payoff and most dangerous targets with a fires-based doctrine of combined arms. In response to this threat, the Army developed a framework of operational depth and a pattern of operations that called for movement by echelon in the approach and a clearly defined sequence of combat operations: develop the situation from external sources; establish contact; deploy to develop the situation after contact; and maneuver to fix, disrupt, and destroy the enemy through envelopment and follow-through actions. Units normally relied upon developing the situation after contact for useful combat information and attrited enemy units.[37]

[37]TRADOC Pamphlet (Draft) 525-3-91, 6 Nov 01, pp. 6-7.

TRADOC and the Army believed that Objective Force units would face an entirely different operational environment. At one end of the spectrum of conflict, creative and adaptive opponents would employ strategies to destroy American resolve by attacking the homeland, killing innocent civilians, and conducting prolonged operations. At the other end was the possibility of major theater war. While the enemy would still retain the ability to fight in massed formations, American military forces could no longer depend upon the enemy to array itself in predictable formations. The enemy would seek advantages of weather and terrain, would take sanctuary in complex terrain, would employ terrain masking, and would protect high-payoff targets by shielding them among non-combatants. Behind this wide spectrum of conflict would be the information revolution and technological advances that promised breakthroughs in surveillance and communications to create immense bases of knowledge for military planning and execution unprecedented in scope, volume, and accuracy.[38]

To fight successfully in the new operational environment, the Army would have to see first, understand first, act first, and finish decisively. To see first meant detecting, identifying, and tracking the individual components of enemy units and denying them to do the same against Army forces. To understand first would follow and permit anticipating the enemy's intentions. To act first involved initiating decisive engagement at the Army's chosen time and place, while to finish decisively meant well-timed assaults, exploitation of successes, and denying the enemy the opportunity to regroup or to continue the fight.[39]

To achieve this decisive combat power required information dominance through advanced C4ISR capabilities. As the Army explained in 2000-2001, its science and technology program would develop advanced sensors and sensor processing; intelligence and electronic warfare systems and techniques; militarized and special-purpose electronics; countermine technologies; and command,

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[38]Ibid., pp. 8, 11; White Paper, subj: Concepts for the Objective Force, Nov 01, pp. 3, 6.

[39]Ibid., pp. 6-8; Email msg with atch, subj: LegIntObj2, 1 Apr 02; TRADOC Pamphlet (Draft) 525-3-91, 6 Nov 01, pp. 11-12.

control, communications, and computers systems. C4ISR would be complemented by future reconnaissance, lift, and attack aircraft; advanced military logistical systems; and the Future Combat System.[40]

[40]Army Modernization Plan (Extract), 2001, pp. 12, 31; Email msg with atch, subj: LegIntObj2, 1 Apr 02.

Transforming the Field Artillery and Fire Support for the 21st Century. The Field Artillery also had to transform itself to meet the future requirements envisioned by General Shinseki. In mid-2000 the Field Artillery School explained that the field artillery force had to maintain a credible warfighting capability by modernizing the Counterforce (Legacy) Force while it developed, manned, and equipped the Interim Force that marked the first steps in reaching the Objective Force. To make the transition from the current force or the Legacy Force to the Objective Force, the Field Artillery School analyzed transformation requirements, assessed existing operational capabilities, and identified operational and organizational deficiencies for the Field Artillery and fire support.[41]

[41]2000 USAFACFS ACH, pp. 79-80.

As the Field Artillery School looked into the future from the perspective of 2000-2001, it projected a significant transformation because of a noticeably different operational environment. It foresaw resilient and adaptive adversaries, less frequent, large-scale maneuver, dispersion into smaller, combined arms elements than ever before, exploitation of precision strike capabilities and advanced technology, and asymmetric response's United States's advantages, such as the employment of sanctuaries and the use of civilians as protective shields, that would require more sophisticated target acquisition capabilities and precision munitions than currently available. For the Field Artillery, the future battlefield meant significant change because existing field artillery capabilities had been created for a Cold War paradigm. During the Cold War and Operation Desert Storm of 1991, the Field Artillery depended upon massed fire against area targets; and this would not be as likely in the future.[42] The need to transform the Field Artillery and fire support led to a modernization plan in 2000 and a revised one in 2001 that reformulated doctrine and urged fielding new equipment. As explained in the plan, the Field Artillery would remain relevant primarily because of the enduring functions performed by field artillery: providing close support fires for decisive operations, counter strike fires, and shaping fires at tactical and operational depth. Close support for decisive operations involved attacking enemy troops, weapons, or positions to destroy in close combat as part of decisive operations and to fix, to suppress, or to enable the freedom of maneuver. Counter strike consisted of destroying the enemy's precision strike capabilities before the enemy attacked, while shaping fires at tactical and operational depth comprised attacking the enemy forces beyond the close fight to set the conditions for decisive operations, to isolate the current close fight, to shape the next fight, and to protect the force. The School also anticipated replacing the term, "fire support," with the term, "effects coordination and generation," and retaining responsibility for overall effects coordination and

[42]2000 USAFACFS ACH, p. 80; Field Artillery Modernization and Transformation Plan (Draft), Jan 02, pp. 9-15, Doc III-60.

generation.[43]

Besides writing new doctrine, the Field Artillery School expected new weapons to be developed. As part of the Transformation of the Army, the Field Artillery School proposed to modernize the Legacy Force as the Interim Force was stood up and as the Objective Force was being developed. Additionally, the modernization plan stressed the criticality of cannon, rocket, and missile precision and smart munitions, such as the Unitary, to limit collateral damage in urban environments. The School chose Excalibur for cannon artillery because it would provide enhanced capability for precision engagements with limited collateral damage in urban environments and wanted the Multiple-Launch Rocket System Smart Tactical Rocket for rocket artillery and the ATACMS for missile artillery.[44]

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[43]2000 USAFACFS ACH, pp. 80-81; The Field Artillery Modernization and Transformation Plan (Draft), Jan 02, pp. 17-21.

[44]2000 USAFACFS ACH, pp. 82; The Field Artillery Transformation and Modernization Plan, Jan 02.

Interim Armored Vehicle and Future Combat System. As the Army developing organizational designs for the Interim Brigade Combat Team, the Interim Division, and the Objective Force, the Army simultaneously outlined a plan to equip the Interim Brigade Combat Team with Interim Armored Vehicle (IAV) family of medium armored vehicles and the Objective Force with the Future Combat System (FCS).[45] To acquire the IAV, the Army hosted platform performance demonstrations in December 1999 and January 2000 at Fort Knox, Kentucky, where manufacturers displayed their medium-weight vehicles to give a sense of what was available before formal requirements for the system were written. The demonstrations also allowed the Army to communicate its requirements to industry, to permit refining requirements, and to explore current vehicles for adapting to platform requirements and potential technology insertion. Nine contractors accepted the challenge and fielded thirty-five different systems. Of these, only three manufacturers submitted tracked systems; and only United Defense, which fielded nine variants of the M113 personnel carrier and the M8 armored guns system, a light tank system that the Army had canceled on the eve of production, was an American firm.[46]

Following up on the December and January demonstrations, the Army's Source Selection Evaluation Board held a thirty-day series of events to grade the performance and endurance of the thirty-five vehicles. During June 2000, the board operated seven days a week with two ten-hour shifts daily and ran the vehicles through various tests. Colonel (P) Donald F. Shenk, the IAV Program Manager at the Tank and Automotive and Armament Command, Dearborn, Michigan, explained the need for wheeled or tracked vehicles with cross-country speed, mobility, and maneuverability. Basically, the Army outlined the object of finding a family of vehicles that was air transportable, was capable of immediate employment upon arrival in the theater of operations, and had the

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[45]Ibid., p. 74; "Army Asks Congress to Drop Demand for Comparative IBCT Evaluation," Inside the Army, 29 Oct 01, pp. 1, 11, Doc III-40; Information Paper, subj: IAV, 2002, Doc III-41; IAV ORD (Extract), 6 Apr 00, Doc III-41a.

[46]2000 USAFACFS ACH, pp. 74-75.

greatest degree of commonality possible. Other desired characteristics included low sustainment costs, fuel economy, and maintainability. As of August 2000, the IAV selection process centered on the infantry carrier vehicle with eight configurations and two variants, the mobile gun system and the self-propelled 155-mm. howitzer, and had a goal of choosing the vehicle or platforms as the Army called them sometime in the summer or fall of 2000.[47]

[47]Ibid., pp. 75-76; Fact Sheet, subj: Brigade Combat Team, 5 Mar 02, Doc III-41aa; "Interim Armored Vehicle Testing Begins," Army News Service, 8 Jun 00, Doc III-41aaa.

Selecting an IAV generated a controversy. As early as October 1999, General Shinseki expressed his interest in a wheeled vehicle as a possible solution. This prompted the Army to discard tradition by giving wheeled vehicles more attention than it had done for years and to counter the cultural bias that had caused them to receive little attention. This aggravated the proponents of tracked vehicles because they feared that wheeled vehicles would be favored in IAV competition at Aberdeen Proving Ground. Also, advocates of tracked vehicles decried the possibility of adopting a wheeled vehicle because the latter had less cross-country capabilities. Proponents of wheeled vehicles, in the meantime, pointed out that they were simpler to maintain and were more reliable, while the supporters of track vehicles added that such a comparison was unfair because track vehicles were driven on much more difficult terrain and that the Army would be foolish to go with wheeled vehicles for their speed when they were vulnerable to getting stuck in mud, rocks, and other terrain over which tracks would glide. Reflecting a moderate position, Lieutenant Colonel Dana Pittard of the 3rd Brigade, 2nd Infantry Division that was converting to the Initial Brigade Combat Team organization at Fort Lewis espoused adopting the best vehicle. It did not matter to him whether it ran on wheels or tracks. As the arguments indicated, each type of vehicle had its own merits and liabilities. For example, initial testing demonstrated the wheeled vehicle's ability to travel faster on the road and the track vehicle's cross-country superiority and failed to determine a clear winner, according to Colonel Shenk. Adopting either one meant tradeoffs. The wheeled vehicle sacrificed cross-country mobility for speed, and the tracked vehicle forewent speed for cross-country mobility.[48]

After assessing the various IAV candidates, the Army made its decision. On 17 November 2000 it announced awarding the IAV contract to GM General Dynamics Land Systems that built light armored vehicles for the U.S. Marine Corps, the Canadian forces, the Saudi Arabian military, and the Australian army. The company would manufacture its Light Armored Vehicle (LAV III) as the IAV in two variants, the infantry carrier vehicle and the mobile gun system. Both would be wheeled. LAV III offered commonality by using a single chassis for all ten

[48]2000 USAFACFS ACH, pp. 76-77.

configurations, would enable units to take fewer spare parts, and would reduce the logistical burden. Moreover, LAV III could move at sixty miles per hour and travel in convoys at forty miles per hour and would provide the Interim Brigade Combat Team with tactical speed on the battlefield. Other benefits included strategic mobility via a C-130 and low sustainment costs and quiet operation, which would permit soldiers to move stealthily in battle.[49]

[49]Ibid., p. 77.

The decision surprised some tracked vehicle manufacturers and caused a vigorous response. Believing that they had been overlooked, they countered that their proposals were significantly stronger than the winner on several key points. Specifically, United Defense, the producer of the Mobile Tactical Vehicle Light and the M8 Armored Gun System, observed that its proposal was less expensive, that it met the Army's requirements, and that it could be delivered earlier than the LAV III. Along the same lines the president and chief executive of Vision Technologies Kinetics insisted that his company's tracked vehicle performed better than the LAV III in the competition.[50]

Late in November 2000, the Director of the Army's Acquisition Corps, Lieutenant General Paul J. Kern, reflected upon the decision to obtain the LAV III in light of the debate about the choice of vehicles.[51] After acknowledging that "wheels cannot outperform tracks in all situations," he explained, "This is an off-the-shelf procurement today of what we see is the best capability for

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[50]Ibid., pp. 77-78.

[51]Ibid., p. 78.

mobility with wheeled vehicles."[52] The LAV III was a solid choice "if you go very quickly across, not necessarily highways, but improved roads, and [it] gives us a very good cross-country mobility as well," according to General Kern.[53]

[52]"Kern Says Vehicle Award Does Not Settle Debate Over Wheels and Tracks," Inside the Army, 20 Nov 00, p. 6, Doc III-47, 2000 USAFACFS ACH.

[53]Ibid.

In December 2000 United Defense LP, one of the contractors that had bid for the IAV, filed a formal protest against the contract awarded to GM Defense and General Dynamics Land Systems by insisting that the Army had failed to adhere to its published criteria for evaluating the proposed IAV. United Defense contended that the tests emphasized the benefits of wheeled vehicles and downplayed the strengths of track vehicles. In comparison, the request for purchase, the operational and organizational plan, and the operational requirements document provided opportunities for both wheeled and tracked vehicles. This created a disconnect between the evaluation scenarios and the performance requirement documents. Additionally, United Defense protested that the Army utilized an extended road march to justify its choice and that the road march was never part of the performance criteria. The request for purchase document described a terrain profile for the IAV that featured fifty percent cross-country travel, thirty percent on secondary road, and twenty percent on primary road. Despite these and other test failings and the fact that the protest forced developmental work to stop, the Army expressed confidence with its selection of a wheeled vehicle by GM Defense and General Dynamics Lands Systems. It would hold up under scrutiny.[54] Four months later on 9 April 2001, the General Accounting Office denied United Defense's protest after reviewing it, permitting the Army to restart the IAV program by purchasing IAVs for six Interim Brigade Combat Teams as well as the institutional Army for training purposes. As General Shinseki pointed out in July 2001, the Army hoped to have its first IAVs in mid-2002 and to complete fielding them in 2005 and subsequently in February 2002 named the vehicle Stryker after two Medal of Honor winners, Private First Class Stuart S. Stryker, who had served World War II, and Specialist Robert F. Stryker, who had served in Vietnam.[55]

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[54]2000 USAFACFS ACH, pp. 78-79.

[55]News Briefing, subj: IBCT and IAVs, 17 May 01, Doc III-42; "Army Statement On GAO Interim Armored Vehicle Protest Recommendation," U.S. Army News Release, 9 Apr 01, Doc III-43; "Army Selects GM to Make Interim Armored Vehicle," Army Link News, 20 Nov 00, Doc III-44; "Army Orients Interim Force Toward Pacific Rim to Achieve Balance," Inside the Army, 16 Jul 01, pp. 1, 11, Doc III-

Given the controversy over the selection process, Congress inserted a provision in the Fiscal Year (FY) 2001 Defense Authorization Act mandating a live competition between the IAV III and the M113A3 Armored Personnel Carrier to ensure that the costly procurement was really necessary. The Army opposed the measure. The test would detract from readiness and would slow down the transformation process because it would cost the service additional money and because the service would be prohibited from spending any money on fielding the third Initial Brigade Combat Team with LAV III. In light of the terrorist attacks on the World Trade Center in New York City and the Pentagon on 11 September 2001, the competition would be even more deleterious to national security. Readiness had to be expedited. Notwithstanding this, the Congress still planned conducting the live competition sometime in 2002 but outlined a caveat in the authorization act. If the Army could provide timely and satisfactory

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44a; Information Paper, subj: IAV, 2001, Doc III-; U.S. Army News Release, "Army Announced Name for Interim Armored Vehicle," 27 Feb 02, Doc III-45.

information that Congress required without conducting a live competition, then the test might not be necessary, according to the Under Secretary of the Army, Les Brownlee.[56]

[56]"Army Asks Congress to Drop Demand for Comparative IBCT Evalualtion," Inside the Army, 29 Oct 01, pp. 1, 11; "Senate Armed Services Committee Confirms New Army Under Secretary," Inside the Army, 12 Nov 01, pp. 1, 14, Doc III-46; U.S. Army News Release, "Army Announces Name for Interim Armored Vehicle," 27 Feb 02, Doc III-47.

Letters written to Senators Joseph Lieberman of Connecticut and Rick Santorum of Pennsylvania by Secretary of the Army, Thomas White, in November 2001 caused Congress to change its mind. Basically, Secretary White wrote that the test would be costly, that it would distract the Army during a critical time, and that it would not generate any new data. In response to this line of reasoning, Congress dropped the mandate to conduct comparison testing of the LAV III and M113 in FY 2002 Defense Appropriation Act.[57]

Meanwhile, work on the FCS for the Objective Force moved forward. To field the FCS the Army and Defense Advanced Research Projects Agency (DARPA) launched a collaborative effort beginning in May 2000 to define and demonstrate future combat systems. As outlined in 2000, the FCS would supplant the IAV as the primary weapon/troop carrying platform for the Objective Force. The centerpiece of the Objective Force, FCS would be a family of vehicles and would have four primary functions -- indirect fire, direct fire, infantry carrier, and sensor -- and would therefore be a system of battlefield capabilities. Additionally, the FCS would be a replacement for the seventy-ton Abrams tank, would have the same lethality and crew survivability as the Abrams tank, would be fifty tons lighter, and would be critical to creating the objective force that was expected to be formed beginning in 2008-2012. Ultimately, FCS would make heavy forces lighter, would make lighter forces more lethal, would reduce the logistical demands, would function in the operational environment of the future, would enable the Objective

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[57]"Congress Gives Pentagon Option to Waive IAV Testing Requirement," Inside the Army, 17 Dec 01, pp. 1, 10, Doc III-48.

Force's Units of Action to dominate ground combat across the entire spectrum of operations, and would enhance their ability to conduct decisive tactical maneuver.[58]

[58]2000 USAFACFS ACH, p. 79; Mission Need Statement for FCS, 2 Nov 01, Doc III-49; "DARPA and Army Select Contractors for Future Combat Systems Program," Office of the Assistant Secretary of Defense (Public Affairs), 9 May 00, Doc III-50; Briefing (Extract), subj: FCS Industry Day, 9 Nov 01, Doc III-51.

Although the FCS remained in the conceptual exploration phase of development in 2001 as it had been in 2000, the Army worked out more details concerning the program in cooperation with industry.[59] In the Mission Needs Statement of November 2001, the Army wrote, "The FCS is the networked systems of systems that will serve as the core building block within all maneuver . . . echelons to develop overmatching combat power, sustainability, agility, and versatility necessary for full spectrum military operations."[60] The FCS would revolve around a family of platforms of advanced, networked space-, air-, and ground-based maneuver, maneuver support, and sustainment systems that would include manned and unmanned platforms with the largest being lighter than current mechanized systems, even though functional and tactical requirements would be achieved by a single vehicle system or platform. As the Army explained in October 2001, the platforms could even be powered by hybrid-electric engines. Elaborating further,

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[59]Point Paper, subj: Future Combat System, 18 May 01, Doc III-52; "Army Unveils Next Phase of Future Combat Systems Program," Inside the Army, 12 Nov 01, pp. 1, 10.

[60]Mission Need Statement, FCS, 2 Nov 01.

General Dynamics Land Systems noted that hybrid-electric engines would increase fuel efficiency, would permit providing each wheel with an engine, would eliminate the need for a drive train, and would increase the amount of space available in the vehicle.[61]

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[61]"GDLS Officials Tout Possible Future Combat System Chassis," Inside the Army, 22 Oct 01, pp. 11, 12, Doc III-53; Briefing, subj: Future Combat Systems: Manufacturing Readiness, 27 Nov 01, Doc III-54; Mission Need Statement, FCS (Extract), 2 Nov 01; Information Paper, subj: Future Combat Systems/Future Combat System, 2001, p. 1, Doc III-55; Information Paper, subj: FCS, 4 Feb 02, Doc III-56; Briefing (Extract), subj: FCS Competition for Lead System Integrator, 9 Nov 01, Doc III-57; Briefing, subj: Building An Army. . .FCS as Part

Army Experimentation Campaign Plan

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of the Objective Force, 9 Nov 01, Doc III-58; Briefing, subj: Objective Force, 17 Oct 00; Statement of Required Capabilities, FCS, 2 Nov 01, Doc III-59.

At a Pentagon presentation in mid-1998, the Commanding General of the U.S. Army Training and Doctrine Command (TRADOC), General William W. Hartzog, unveiled the blueprint of the future Army. Besides announcing the Army XXI heavy/mechanized division structure upon which the 4th Infantry Division at Fort Hood, Texas, would be organized, equipped, and tested in a few years, General Hartzog said that the Army had developed a three-axis experimental plan to carry it beyond Army XXI to the Army After Next of 2025. The light axis would center on the development of new equipment and force structure for light contingency forces. The strike axis would concentrate on experimentation to develop a highly deployable brigade-size force to bridge the lethality and survivability gap between early entry and campaign forces, and finally the mechanized axis would focus on fielding the first digitized division in 2000 and the first digitized corps in 2004.[62] Of the three efforts, the strike axis ended in 1999 with the emergence of the Transformation of the Army program under the Chief of Staff of the Army, General Eric K. Shinseki.[63]

Basically, the Army Experimentation Campaign Plan served as the fundamental tool for adapting the Army to the challenges of modern warfare and rested upon a key concept. The plan would permit the Army to identify and incorporate the most promising enhancements to improve its warfighting capabilities and strategic responsiveness.[64]

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[62]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 82.

[63]1999 USAFACFS ACH, p. 76.

[64]Statement by LTG Randall L. Rigby, Deputy

Commanding General (Futures), TRADOC, before the Emerging Threats and Capabilities Subcommittee, Armed Services Committee, US Senate, Second Session, 106th Congress, 20 Oct 99, p. 5, Doc III-61; hereafter called Rigby Statement.

Joint Contingency Force Advanced Warfighting Experiment. Understanding that the Division Advanced Warfighting Experiment (DAWE) of 1997 concentrated on the heavy mechanized division axis, the Army knew that it had to modernize its light forces for contingency operations given the world situation. In view of this critical need, the Army decided in 1998 to look at its light units with the goal of digitizing them and conducting a Joint Contingency Force Advanced Warfighting Experiment (JCF AWE) in September 2000 at the Joint Readiness Training Center (JRTC), Fort Polk, Louisiana, with the Air Force and the Marine Corps. The Joint Contingency AWE would examine ways to leverage information technologies, to improve the warfighting capabilities of the light contingency forces to execute operations in urban and restrictive terrain, to verify which systems would increase the lethality and survivability of joint contingency forces in an early-entry environment, and to keep the United States forces the dominant military land power.[65]

Although it would be some time before the final analysis would be completed, some clear insights emerged from the September 2000 JCF AWE conducted by the 1st Brigade, 10th Mountain Division. First, the experiment reaffirmed the power of shared situational awareness on the battlefield. Second, shared situational awareness was dependent upon well-led and well-trained soldiers. Third, proficiency in digital skills was critical and was no longer an adjunct to other skills. Fourth, the synergy produced by the Army Tactical Command and Control System of which the Advanced Field Artillery Tactical System was a part was powerful. As the Deputy Chief of Staff for Combat Developments at TRADOC noted in October 2000, the digitized force demonstrated the ability to collect and exploit digital information and achieved considerable improvements over a non-digital force.[66]

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[65]2000 USAFACFS ACH, pp. 82-83.

[66]2000 USAFACFS ACH, p. 85; TRADOC Combat

Developments Newsletter, Oct 00, p. 1, Doc III-63; Joint Venture, HQ TRADOC, "JCF AWE," unpaginated, Doc III-64.

In 2001 JCF AWE participants, Lieutenant Colonel Vance J. Nannini, commander of the 3rd Battalion, 6th Field Artillery, 10th Mountain Division, and Colonel Arthur M. Bartell, commander of the 10th Mountain Division artillery, focused their comments on the successes of fire support during the test. Although digitized command and control systems demonstrated the ability to establish a clear tactical picture across the task force, furnished unprecedented situational awareness, and helped accurately visualize the battlefield to improve combined arms warfare, they noted that the digitized towed howitzer was also great success story. A digitized towed gun had quicker response times than its non-digital counterpart because it had automated on-board positioning, aiming, and communications capabilities comparable to those on the Paladin and did not depend upon manual computations.[67] **Division Capstone Exercises.** The mechanized axis of the Army Experimentation Campaign Plan centered on the first digitized division and corps -- the 4th Infantry Division and III Armored Corps. Upon the completion of the Division Advanced Warfighting Exercise of November 1997 that tested conceptual digitized enhancements to the heavy division, the Chief of Staff of the Army, Dennis J. Reimer, mandated a proof-of-concept demonstration to be conducted around 2001 to affirm the progress of key enhancements to the division. In response to the Chief of Staff's tasking, the U.S. Army Training and Doctrine Command (TRADOC)

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[67]LTC Vance J. Nannini and COL Arthur M. Bartell, "Light Force Modernization," Field Artillery, Mar-Apr 01, pp. 42-45, Doc III-62.

established the Division Capstone Exercise (DCX) to serve as the capstone event for the 4th Infantry Division. It would not be a demonstration or a test to be passed or failed.[68]

[68]2000 USAFACFS ACH, pp. 89-90.

Late in 2001, tentative lessons learn began emerging from the two-phase division capstone exercise. Following the two-week, non-stop operations at the NTC in April 2001, officers and soldiers discussed their ability to operate with initiative and to adapt quickly to changing conditions throughout harsh weather conditions. According to NTC officials, advanced digital technology in the form of the tactical Internet made such operations possible. "Battles during the DCX demonstrated that Army Battle Command Systems, commonly referred to as digital information systems or ABCS, were able to empower soldiers to 'move more quickly over the extended battlespace,'" explained Brigadier General James D. Thurman, the Commander of the NTC.[69] He added, "The Division Capstone Exercise clearly demonstrated what well-trained and competent leaders can do when they leverage information and use it as an element of combat power."[70] The Commander of the 4th Infantry Division, Major General Ben Griffin, reached the same conclusion. "The DCX provided us with a continuous operation in a tactical environment to challenge our communication systems, our digital systems, and our war-fighting systems, against a very, very competent OPFOR [opposing force]," he noted.[71] Even before the two-week exercise had ended, the Chief of Staff of the Army, General Eric K. Shinseki, pointed out, "This was a great demonstration of the warfighting capability our Legacy Force to fight and win decisively."[72] Such a performance validated the transformation of the 4th Infantry Division into a digital combat force and its ability to contribute to the III Armored Corps's land campaign counteroffensive capability. Yet, DCX officials conceded that it would be some time before they could fully analyze the data collected from the April 2001 exercise as well as the

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[69]"4th ID Shows Info Superiority at DCX," ArmyLink News, 17 Apr 01, Doc III-65.

[70]Ibid.

[71]"Army Demonstrates Information Superiority at DCX," TRADOC News Service, 16 Apr 01, Doc III-66.

[72]"DCX 'A Great Demonstration of Warfighting Capability' Says Shinseki," TRADOC PAO, undated, Doc III-67.

October 2001 exercise at Fort Hood, Texas, that was a command and control simulation using the Battle Command Training Program to exercise brigade and division command posts.[73]

Although concrete lessons learned from DCX I and II had not yet emerged at the end of 2001, the Field Artillery School made key but tentative observations. First, through

[73]"4th ID Shows Info Superiority at DCX," ArmyLink News, 17 Apr 01; "Army Demonstrates Information Superiority at DCX," TRADOC News Service, 16 Apr 01; "First Digitized Division to be Challenged at NTC Exercise," ArmyLink News, 19 Mar 01, Doc III-68; "Division Capstone Exercise II," TRADOC Public Affairs Office, undated, Doc III-69; Email msg, subj: DCX, 11 Mar 02, Doc III-70.

effective planning commanders could limit collateral damage and non-combatant casualties even in built-up areas without sacrificing the mission. Second, AFATDS demonstrated that it worked well with other Army Battle Command System (ABCS) systems. Last, the DCX would supply lessons for the Objective Force being designed as part of the Transformation of the Army.[74]

Field Artillery and Close Support

[74]Interview, Dastrup with LTC Richard C. Longo, TF XXI, 25 Feb 02, Doc III-71; Fact Sheet with Atch, subj: Executive Summary for DCX II Initial Insights Memorandum, 21 Nov 01, Doc III-71a; Email msg, subj: DCX, 11 Mar 02.

In 2001 debate over of the Field Artillery's failure to provide responsive and effective close support to the maneuver forces at the combat training centers continued. Although the Chief of Field Artillery and Commandant of the Field Artillery School, Major Toney Stricklin, categorically rejected in 1999, 2000, and 2001 that the Field Artillery failed to provide responsive close support, an article in Army in April 2001 severely argued to the contrary.[75] From the perspective of the author of the article, the Field Artillery concentrated upon fighting its own battle with little regard for the maneuver forces. This stemmed from the emergence of AirLand Battle in the 1970s and 1980s with its emphasis upon the deep battle and attacking high-payoff targets to disrupt, slow, and wear down the enemy before it could overwhelm the defense with superior numbers. For whatever reason, the author explained, this practice carried over to the close battle and close support. Rather than supporting the maneuver commander's scheme with classical fire support where the fire support officer attacked targets designated by the maneuver commander, the Field Artillery provided parallel fire support by engaging its own target priorities that were often independent of the maneuver commander's wishes and requirements.[76]

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[75]MG Toney Stricklin, "Field Artillery: Relevant, Trained and Ready . . . Two years Later," Field Artillery, Jul-Aug 01, pp. 1-6, Doc III-72.

[76]LTC Robert R. Leonhard, "Classical Fire Support vs. Parallel Fires," Army, Apr 01, pp. 47-50, Doc III-73.

After acknowledging the difficulty of furnishing effective close support, General Stricklin in response pointed out that field artillerymen, maneuver commanders, and the Army staff shared fixing this fire support issue. As training examples from the National Training Center at Fort Irwin, California, suggested, close fires lacked responsiveness. However, this stemmed from old delivery systems and inadequate target engagement systems. While the towed M119 105-mm. howitzer had technical problems, the self-propelled Paladin 155-mm. howitzer and the towed M198 155-mm. howitzer were cumbersome, labor intensive, and unable to support fast-moving maneuver forces. Also, existing target acquisition systems restricted locating targets accurately, positioning observers in the correct location to observe targets and adjust fires, and providing digital and voice communications.[77] The Army's decision in 1996 to downsize the field artillery battalion from twenty-four to eighteen howitzers reflected the willingness to accept a short-term risk and exacerbated the problem of providing effective close support. However, the decision was made, pending the fielding of new weapon systems, the Crusader self-propelled 155-mm. howitzer, the enhanced Multiple-Launch Rocket System M270A1 launcher, and precision munitions. Funding reductions unfortunately forced the next-generation, Crusader to be slipped from Fiscal Year (FY) 2005 to FY 2008 with fewer systems being fielded and caused the Sense-and-Destroy Armor Munition (SADARM)and MLRS Smart Tactical Rocket (MSTAR) to be terminated.[78]

To improve close support General Stricklin presented eight solutions. First, training had to be realistic. Observers required better training with the ground/vehicular laser locator designator (GVLLD), the Hellfire ground support system, and mini eye-safe laser infrared observation set to ensure that they could deliver eight-digit grid accuracy when needed. Remarkably, about seventy-five percent of the close support fires at the NTC

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[77]Stricklin, "Field Artillery," pp. 2-3; Stricklin and COL (Ret) Sammy Coffman, "Making Close Supporting Fires Happen," Army, Aug 01, pp. 33-38, Doc III-74.

[78]Stricklin, "Field Artillery," pp. 2-4; Stricklin and Coffman, "Making Close Supporting Fires Happen," pp. 33-38.

were unobserved. If this practice continued, observers would remain untrained in providing observed close support. They had to learn to make calls for fire and initiate fire on a target. Second, units had to have flexibility at the combat training centers to organize as they would fight. Third, the Army and Field Artillery required a more streamlined and flexible digital fire support structure to reduce the intervention points between the sensor and shooter. Fourth, the Field Artillery had to improve its ability to locate targets. Fifth, effects replication at the combat training centers had to portray the impact of fires better. Sixth, the maneuver brigade had to set the priorities for the direct support battalion. Seventh, the Army needed better simulations. Eighth, doctrine had to decentralize fires down to the field artillery battalion to improve close support. Concluding, General Stricklin said that these solutions would improve close support and make it more responsive to the maneuver commander's requirements but that they needed to be supported by the entire combined army team.[79]

Integrated Munitions Strategy Analysis

[79]Stricklin, "Field Artillery," pp. 4-6.

In mid-December 2001 the U.S. Army Field Artillery School initiated the Integrated Munitions Strategy Analysis to determine what munitions to fund and the desirable level of funding with the objective of completing the analysis by March 2002. The analysis centered around conducting performance and operational tests on eleven munitions. While some munitions were already in the Field Artillery's inventory, others were under development.[80]

EQUIPMENT

XM892 Excalibur Extended Range Guided Projectile

Determined to increase the range of its cannon artillery without sacrificing accuracy, the U.S. Army explored the need to adopt the XM892 Excalibur Extended Range Guided Projectile. As outlined in 1995, Excalibur would be a fire-and-forget projectile with a Global Positioning System (GPS) receiver and inertial measurement unit guidance package that would allow the projectile to fly extended ranges (fifty kilometers) to shape the close battle and to improve survivability and would be able it to hit within six meters of the target. The projectile's modular design would permit carrying the Dual-Purposed Improved Conventional Munition (DPICM) for area targets, the Search-and-Destroy Armor Munition (SADARM) for counterfire against self-propelled artillery or armor, or the Unitary munition for precision targets -- soft or hard. Ultimately, Excalibur would furnish the Field Artillery

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[80]Interview, Dastrup with Thomas L. Hills, Analytics Branch, FDIC, 27 Feb 02, Doc III-75; Briefing, subj: Integrated Munitions Strategy Analysis In-process Review, 15 Feb 02, Doc III-76.

with improved fire support, would be compatible with all digitized 155-mm. howitzers, such as the Paladin self-propelled howitzer, the Lightweight 155-mm. towed howitzer under development, and the Crusader 155-mm. self-propelled howitzer under development; would reduce fratricide; and would be fielded in Fiscal Year (FY) 2006 with DPICM, in FY 2007 with SADARM, and in FY 2010 with Unitary.[81]

[81]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 94-95; Scott R. Gourley, "XM892 Excalibur Warhead," Army, Nov 01, pp. 56-57, Doc III-77; Information Paper, subj: Excalibur 155mm Precision-Guided Extended Range Artillery Projectile Family, 2001, Doc III-78.

Several years into development, critical issues altered the direction of the Excalibur program. Because of insufficient funding and the termination of the SADARM program, the Army decided early in 2000 to limit Excalibur's initial development to DPICM. However, the fear of duds and collateral damage, the need for precision, and the Transformation of the Army process, especially the creation of the Initial Brigade Combat Team, caused another shift in priorities. In December 2000 the Commandant of the U.S. Army Field Artillery School, Major General Toney Stricklin, signed a school decision paper to switch Excalibur's initial development to the Unitary munition. Concurring with General Stricklin's decision, the Program Manager for Excalibur subsequently deferred work on the DPICM warhead beginning in January 2001 because it caused collateral damage by scattering sometimes unexploded bomblets upon base ejection and made the Unitary the primary warhead because it had a low collateral damage effect. This caused Unitary warhead to become more important after being a low priority for years.[82]

In the meantime, another development influenced the Excalibur program. In 1999 Congress started pulling money from the Excalibur program to fund the Trajectory Correctable Munition (TCM), a howitzer-launched 155-mm. artillery projectile being developed by Bofors Defense of Sweden. Using the Global Positioning System and an inertial measurement unit, the Bofors TCM would carry three different warheads, including Unitary, would provide a significant increase in accuracy with first-round hit capabilities, and would extend the Field Artillery's digitized cannon range from twenty-seven to thirty-five kilometers with the XM777 155-mm. towed howitzer under development and M109A6 self-propelled 155-mm. howitzer and fifty plus kilometers with the Crusader. Equally

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[82]2000 USAFACFS ACH, p. 95; Email msg, subj: None, 12 Mar 02, Doc III-79; Gourley, "XM892 Excalibur Warhead," pp. 56-57; Interview, Dastrup with MAJ Danny J. Sprengle, TSM Cannon, 6 Feb 02, Doc III-80; Interview, Dastrup with Doug Brown, Dep Dir, TSM Cannon, 4 Feb 02, Doc III-81; Army RDT and E Budget Item Justification, Artillery Munitions EMD, Jun 01, Doc III-82; Information Paper, subj: Excalibur and Trajectory Correctable Munitions (TCM) Program Merger, 21 Nov 01, Doc III-83; Email msg with atch, subj: Excalibur, 20 Feb 02, Doc III-84.

important, TCM would significantly improve warfighting capability and would give the Army and the Field Artillery a second long-range, precision-guided munition.[83]

[83]Information Paper, subj: TCM, 5 Feb 02, Doc III-85; Interview, Dastrup with MAJ Danny J. Sprengle, TSM Cannon, 6 Feb 02; Information Paper, subj: Excalibur and TCM Program Merger, 21 Nov 01; Email msg, subj: Excalibur, 7 Feb 02; Email msg with atch, subj: Excalibur, 20 Feb 02.

Raytheon's technical problems with the Excalibur airframe or projectile and the inability to afford both TCM and Excalibur soon forced the Army to explore various developmental options with the programs. First, the Army could drop the TCM program and fund Excalibur, but this was a high-risk solution because Excalibur's airframe was untested whereas TCM had been tested and had already demonstrated reliability. Second, the Army could drop Excalibur and fund TCM. This alternative meant abandoning a contract with an American company, which would be politically troublesome. Third, the Army could merge the programs and take the best from each. After serious consideration the Army decided in November 2001 to merge the two developmental programs that had essentially paralleled each other. A merger would deliver a low-risk program that would take advantage of the complementary strengths of each program. Bofors, which would be the subcontractor, had years of experience with projectile design, while Raytheon, which became the prime contractor, possessed extensive experience with guidance electronics and software development.[84] As the Program Executive Officer for Ground Combat and Support Systems, Major General Joseph L. Yakovac, Jr., wrote on 21 November 2001, "It is in the best interests of the Army to merge these two programs. . . ."[85] The merger, however, was not free.

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[84]Interview, Dastrup with Sprengle, 6 Feb 02; Interview, Dastrup with Brown, 4 Feb 02; Information Paper, subj: Excalibur and TCM Program Merger, 21 Nov 01; Information Paper, subj: TCM, 5 Feb 02; Email msg with atch, subj: Excalibur, 20 Feb 02.

[85]Memorandum for Army Acquisition Executive, subj:

Before the merger, Excalibur had unfunded requirements; and the merger added more unfunded requirements.[86]

Sense-and-Destroy-Armor Munition

Merger of Excalibur XM892 and Trajectory Correctable Munitions Programs, 21 Nov 01, Doc III-85a.

[86]Email msg with atch, subj: Excalibur, 20 Feb 02.

After years of developmental work and tests on the Sense-and-Destroy Armor Munition (SADARM), the Army conducted a SADARM Limited User's Test in 2000.[87] During the Limited User's Test, M109A6 155-mm. Howitzers (Paladin) from the 1-17th Field Artillery of Fort Sill, Oklahoma, operated in accordance with doctrine and tactics prescribed by the Field Artillery School. The unit fired four SADARM missions of twenty-four rounds each against sophisticated enemy armored vehicles under tough tactical conditions replicating a Southwest Asia scenario at Yuma Proving Ground, Arizona, from ll April to 2 May 2000. The fired SADARM submunitions scanned for the target area from one hundred plus meters above the target site, detected targets, and fired explosively formed penetrators at high velocity to the hit the tops of the heavily armored vehicles. As explained by participants of the test, SADARM's performance exceeded expectations. However, the Army and Congress failed to provide SADARM procurement and product funding for Fiscal Year (FY) 2001. This action terminated SADARM production and jeopardized future production for possible applications in the Excalibur projectile and Multiple-Launch Rocket System Smart Tactical Rocket (MSTAR). Even so, the Field Artillery School continued to seek funding for SADARM fielding.[88]

Funding never came because the Army saw two other comparable munitions that could replace SADARM and could fill the requirement for a sensor-fuse precision munition. In 2001 the Army noted that the German Smart 155 was in production and was reliable and that the Bonus 155-mm. munition developed by Bofors of Sweden for the Swedish and French armies was also in production and reliable.

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[87]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 95-100.

[88]Ibid., pp. 100-01.

However, Bonus lacked multi-sensor capabilities like the Smart 155 and SADARM and had only infrared capabilities. Notwithstanding the need for a sensor-fuse precision munition, the Army did not make a decision about acquiring either the Smart 155 or the Bonus in 2001.[89]

Crusader Self-Propelled 155-mm. Howitzer

[89]Interview, Dastrup with Doug Brown, Dep Dir, TSM Cannon, 4 Feb 02, Doc III-86.

Initially part of an ambitious acquisition program in the mid-1980s aimed at reducing procurement and sustainment costs by introducing a family of armored vehicles mounted on a common chassis, the Crusader, a self-propelled 155-mm. howitzer, and its resupply vehicle promised to revolutionize cannon field artillery and to serve as the next-generation self-propelled howitzer. Even though studies conducted late in the 1970s and early in the 1980s had already recognized the need for Crusader, the U.S. Army Field Artillery School (USAFAS) revalidated the requirement for the howitzer and its resupply vehicle once again in the 1990s. According to TRADOC System Manager (TSM) Cannon in USAFAS, the system would give the Army a dynamic warfighting capability. The M109A2/A3 self-propelled 155-mm. howitzer and its successor, the M109A6 Paladin self-propelled 155-mm. howitzer, lacked sufficient mobility, survivability, lethality, and effectiveness for combat in the twenty-first century. In all areas of concern, the Crusader significantly exceeded the capabilities of the other two howitzers and promised to be the premier cannon system in the world upon being fielded in 2005 to provide the land force with the ability to win America's wars decisively for the next fifteen to twenty years.[90]

In 1999-2001 the Crusader program underwent significant changes. After becoming Chief of Staff of the Army in the summer of 1999, General Eric K. Shinseki officially announced on 12 October 1999 his objective to make the Army a more strategically responsive force. To do this he planned to develop a force that would be deployable, agile, versatile, lethal, survivable, sustainable, and dominant at every point along the spectrum of operations and concurrently established the goal of deploying a combat-capable brigade anywhere in the world within 96 hours after liftoff, a division on the ground in 120 hours, and 5 divisions within 30 days.[91]

As might be expected, the drive to create a more strategically deployable force raised critical implications with the existing Crusader program late in 1999. Considered to be too heavy by many officers and civilians within the Army for the medium-weight forces envisioned by

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[90]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 101.

[91]Ibid., p. 102.

General Shinseki, the Army contemplated terminating the Crusader to save money for the new medium brigade and suitable systems. Hard work by the Field Artillery School, in particular TSM Cannon, and negotiations during the last two months of 1999, however, prevented the elimination of Crusader, although several programs, including the Multiple-Launch Rocket System Smart Rocket and the Army Tactical Missile System Block IIA, were canceled to help fund the Initial Brigade Combat Teams being formed, their equipment, and their weapon systems.[92]

[92]Ibid.

Because General Shinseki disliked the Crusader's and the resupply vehicle's combined weight of about one hundred tons but liked their capabilities and wanted them to be an integral member of the Army's dominant maneuver force, the Army revamped the Crusader program beginning in November 1999. To make the self-propelled howitzer and its resupply vehicle lighter and more strategically deployable, the Army outlined decreasing the overall weight of the self-propelled howitzer from 55 tons to 38-42 tons and the resupply vehicle from 50 tons to 38-42 tons to permit loading two self-propelled howitzers or two resupply vehicles on a C-5B aircraft and carrying them 3,200 nautical miles while retaining Crusader's key performance parameters. To reach the weight restrictions the Army planned to replace the current vehicle structure and components with lighter weight materials, to utilize modular add-on armor kits to augment the basic hull and turret structure to enhance protection against specific regional threats, to reduce the ammunition and fuel payload, and to utilize a lightweight engine that would be common with the Abrams tank to optimize commonality between the Abrams and Crusader. These modifications would permit reducing the length and width of the vehicles and would create additional weight savings. Also, the Army proposed developing a wheeled version of the resupply vehicle that would increase operational flexibility, slipped fielding from 2005 to 2008 to make the necessary modifications to the program, and planned using Crusader as a technology base for future systems.[93]

Because even the lighter Crusader would not be suitable for the medium brigades, the Army decided to give it to the counterattack corps (III Armored Corps) that would provide the warfighting umbrella under which the Initial/Interim Brigade Combat Team (IBCT) would function until the Army achieved its Objective Force equipped with the Future Combat System (FCS). While the IBCT would be a deployable force to deal with contingency and limited warfare operations, the counterattack corps would deter or execute major theater warfare. Without Crusader the corps would lack the required responsiveness, mobility, lethality, and survivability to ensure success. Therefore, the system was critical to the counterattack corps's success. Equally important, the Army planned to field only 480 Crusaders and

[93]Ibid., pp. 102-03.

resupply vehicles to free funding for the Transformation of the Army. This number was down from 1,138 that would have been fielded to the active component and part of the Army National Guard under the old plan.[94]

[94]Ibid.

Subsequently, as the contractor, United Defense, started with the preliminary redesign work to produce a lighter and more mobile system without compromising performance and as the Army searched for an engine, the Crusader program encountered additional challenges.[95] During appropriations debates for FY 2001, senators and congressmen debated the future of the Crusader program. Some wanted to kill the program, while some supported it and desired to allot more time to restructure the program. In fact, the Senate Appropriations Committee proposed that the Army should refocus the system as a technology program to further field artillery evolution within the Future Combat Systems program and cut the system's funding from $355 million to $200 million, pending delivery by the Office of the Secretary of Defense of a "quick-look" analysis of alternatives to Crusader to Congress by December 2000.[96]

On 15 December 2000 the Army and the Office of the Secretary of Defense furnished Congress with the required report. According to the report, the Crusader program was moving in the right direction because the system would be more operationally effective than existing alternatives. In fact, Crusader-supported forces inflicted substantially more personnel and equipment losses on the opposing force (twenty-seven to thirty-five percent more), while they sustained far fewer losses (sixteen to thirty-four percent less) than forces equipped with Paladin. In view of this, Congress accepted the report and restored full funding in February 2001.[97]

Meanwhile, Crusader design refinement continued, and the initial Crusader howitzer prototype at Yuma Proving Ground, Arizona, proceeded to demonstrate the critical performance requirements in advance of the next program milestone review in 2003. During 2000, the prototype fired to a range of forty kilometers, conducted a fifteen-round mission at a rate of ten rounds per minute and four-round

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[95] Ibid., p. 104.

[96] Ibid.; Briefing, subj: None, Dec 00, Doc III-87; Report, subj: Crusader and the Army Transformation, 15 Dec 00, p. 1, Doc III-88.

[97] Ibid., p. 105; Email msg with atchs, subj: Crusader Article for FA Journal, 14 Jan 02, Doc III-89.

multiple round simultaneous impact mission, and sustained the maximum rate of fire of ten rounds per minute for three minutes. This performance led the U.S. Army Project Manager for Crusader, Colonel Charles Cartwright, to say in February 2001 that the Army was pleased with the firing tests and that the program was on track.[98]

[98]Information Paper, subj: Crusader's Performance Continues to Meet or Exceed Army Expectations, 28 Feb 01, Doc III-90.

Later on 5-6 June 2001, the Army conducted an executive level review at the United Defense's facility in Minneapolis, Minnesota. Designed to brief the Program Executive Officer, Major General Joseph L. Yakovac, the Commanding General of Fort Sill, Major General Toney Stricklin, and other critical Army and civilian officials about the status of the Crusader program, the review outlined the changes that the contractor had made since the directive to redesign the system had been given. As the contractor noted, the redesign would give the field artillery lightweight robotics, new composites, an advanced technology crew cockpit, embedded training, and diagnostic and prognostic software for the first time in a system. With the proposed changes Crusader would be more deployable by strategic airlift over distances dictated by national strategy. One C-17 or C-5 aircraft could transport two Crusaders globally. For the most part, the briefing revealed that progress with developing the key technologies and reducing the system's size and weight were being made.[99]

Subsequent program reviews in July 2001 touched upon other substantial benefits of Crusader. In a briefing on 12 July 2001, the TSM Cannon, Colonel John Klemencic, outlined significant operational problems with Paladin and fire support. With the Paladin the Field Artillery lacked the ability to achieving "overmatch" in close combat, had difficulties keeping its fires in tandem with the maneuver arms, and had difficulties providing responsive fires.[100] Later on 20 July 2001, Colonel Klemencic added, "The short range of our systems [Paladin] limit the commander's ability to shape [the battle space]."[101] In both instances, Colonel Klemencic concluded that Crusader would solve these problems and would decrease response times. For example, in a Paladin unit the fire support team would initiate a

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[99]Information Paper, subj: Army Calls Howitzers Vital to Future Combat System - Army Officials Briefed at Executive Level Review, 29 Jun 01, Doc III-91; GAO Report, subj: Steps to Improve the Crusader Program's Investment Decisions, Feb 02, pp. 1, 16, Doc III-92.

[100]Briefing, subj: Crusader Review, 15 Jul 01, Doc III-93.

[101]Briefing (Extract), subj: Combined Arms Fighting Rationale and Crusader System Capabilities, 20 Jul 01, Doc III-94.

call for fire at the direction of the maneuver commander. The call would go through the maneuver fire support element to the battalion fire direction center to the platoon fire direction center to the guns. This process took up to twenty minutes. The Crusader would eliminate this because it could communicate directly with the sensor and could respond with fires within sixty to ninety seconds.[102]

Crusader had another significant advantage. Because of the redesign effort, Crusader provided greater strategic deployability than Paladin. When Task Force Hawk went to Albania in 1999, it took a Paladin battery of six howitzers and its support equipment. This required twelve C-17 aircraft. Two Crusaders with their support equipment would require six C-17 aircraft (four C-5 aircraft). This amounted to fifty percent fewer aircraft, a smaller logistical tail, and greater firepower and meant that Crusader could play a critical role in power projection and support light forces.[103]

As might be expected, these distinct advantages helped Crusader pass critical milestones during the remaining months of 2001. On 27 September 2001 TRADOC requested the Army to approve the revised operational requirements document. Two months later on 14-15 November 2001, Crusader passed the Preliminary Design Review, allowing the contractor to start producing operational prototypes of the redesigned howitzer for testing in 2004. On 15 November 2001 the Army also designated Crusader as a Legacy to Objective Force system based upon the redesign. The system would bridge the Legacy Force's traditional cannon capabilities with the Objective Force's revolutionary capabilities by providing fire support augmentation to the Interim Force's organic field artillery and the Objective Force although it would not be a Future Combat System based system.[104]

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[102]Briefing, subj: Combined Arms Warfighting Rationale and Crusader System Capabilities, 20 Jul 01; Email msg with atch, subj: Crusader, 5 Apr 02, Doc III-94a.

[103]Briefing, subj: Crusader Review, 12 Jul 01; Briefing, subj: Combined Arms Warfighting Rationale and Crusader Systems Capabilities, 20 Jul 01.

[104]Email msg with atch, subj: Crusader in the FA Mod Strategy, 14 Jan 02, Doc III-95; Email msg, subj: Legacy

to Objective, 4 Dec 01, Doc III-95a; Email msg with atch, subj: Crusader Article for FA Journal, 14 Jan 02; GAO Report, subj: Crusader Program Faces Technical and Other Risks, Jan 02; Email msg with atch, subj: Crusader GAO Draft Report Rebuttal, 3 Jan 02, Doc III-96; Information Paper, subj: Crusader Passes Major Army Milestone, 20 Dec 01, Doc III-97; Information Paper, subj: Crusader Passes Major US Army Milestone, 24 Dec 01, Doc III-98; Information Paper, subj: Crusader Passes Major Army Milestone, 20 Dec 01, Doc III-99; Interview, Dastrup with MAJ Charles J. Emerson, TSM Cannon, 11 Feb 02, Doc III-100; Information Paper, subj: Crusader Design Review Successful, 1 Feb 02, Doc III-101. See GAO Report, subj: Defense Acquisition, Jan 02, for additional information, Doc III-102.

Lightweight Towed 155-mm. Howitzer

When the United States shifted its national defense priorities from forward-deployed forces in Europe to force projection from the continental United States (CONUS) at the end of the Cold War in the early 1990s, lightweight weapons attracted the Army's interest more than before. Lightweight weapons were more strategically and tactically deployable than heavier weapons. In view of the emergence of a new world order and the drive for strategically deployable equipment, the Army wrote an Operational and Organizational Plan in 1991 for a lightweight towed 155-mm. howitzer to replace the aging M198 towed 155-mm. howitzer and later in the decade combined forces with the U.S. Marine Corps to develop a joint towed lightweight (LW) 155-mm. howitzer. The Marine Corps planned to field its LW 155 without digital enhancements because of the urgent need to replace the M101 towed 105-mm. howitzer and the M198 towed 155-mm. howitzer, while the Army planned to field a digitally enhanced LW 155. Subsequent to fielding, the Marine Corps intended to digitize its LW 155 through product improvement programs.[105]

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[105]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 105-08; Information Paper, subj: XM777, LW 155, 15 Dec 98, Doc III-103.

After several years of developmental work, the contractor delivered the engineering and manufacturing development (EMD) prototype XM777s in 2000 and 2001. Unveiled at Picatinney Arsenal, New Jersey, in June 2000, the first EMD prototype XM777 held out great promise, according to the Army. The howitzer's reduced size and weight would permit towing by the prime mover used to tow the M198 and would allow two howitzers to fit into a C-130 aircraft. Additionally, the howitzer could be emplaced in three minutes or less, could fire faster than the M198, could be displaced in two minutes or less, and had a range of thirty kilometers. By the end of 2001, the Army had a total of six EMD howitzers undergoing tests.[106] Unfortunately, none of the six met the requirements for an operational test to be conducted in 2002 by the Army and Marine Corps. This caused the Marine Corps to restructure the program by adding a limited user's test in 2002. If the EMD howitzers passed the test, the contractor could start low-rate initial production of LW 155s with the goal of performing an operational test in 2004 to determine if full production would be permitted.[107]

More than anything else, the Towed Artillery Digitization (TAD) package that was scheduled to be added to the Army variant distinguished the XM777 from the M198. As the Army explained, TAD would give the howitzer onboard advanced capabilities like those associated with self-propelled howitzers, such as the Paladin M109A6 155-mm. howitzer and the futuristic Crusader 155-mm. howitzer, and would eliminate the need for external survey, aiming circles, aiming posts, and collimators. Capabilities, such as self-locating and orienting, onboard firing data computation, easy-to-read electronic sights, digital communications, and improved direct fire sight, would also make the XM777 superior to the M198. Additionally, TAD

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[106]2000 USAFACFS ACH, p. 111; Interview, Dastrup with John Yager, TSM Cannon, 1 Feb 02, Doc III-104; Briefing, subj: LW155, 1998, Doc III-105; Scott Gourley, "Bolstering Fire Support," Armed Forces Journal International, Dec 01, pp. 46-48, Doc III-106.

[107]Email msg with atch, subj: LW155, 7 Mar 02, Doc III-107; Interview, Dastrup with Doug Brown, Dep Dir, TSM Cannon, 4 Feb 02, Doc III-108; Interview, Dastrup with Yager, 1 Feb 02.

would be compatible with the Advanced Field Artillery Tactical System. In light of this, the Army released a request for proposal to industry on 10 February 2000. After analyzing six proposals from private industry, the Army awarded a contract to General Dynamics Armament Systems of Burlington, Vermont, on 15 September 2000 to engineer, manufacture, and develop TAD for operational testing by 2003.[108]

[108]2000 USAFACFS ACH, p. 112; Information Paper, subj: LW 155, 2002, Doc III-109.

In 2001 a critical problem unexpectedly challenged the viability of the TAD program. Early in the year, the Army realized that it had underestimated program costs and lacked the funding to continue. This caused the Program Executive Officer (PEO) for Ground Combat and Support Systems, Major General Joseph L. Yakovac, to ask the Army for additional funding and to examine the possibility of terminating the TAD program and restarting it fresh. The Army subsequently increased the existing funding of $52 million by almost $22 million. When a second funding problem was identified in the summer of 2001, all parties involved in the program concurred that it would be impossible to get more money so soon after the increase in the spring of 2001. As a result, General Yakovac gave the Program Manager and the Field Artillery School ninety days to find a solution. If they failed to provide a solution, he would terminate the program and try to restart it correctly. In response to the tasking, the Commandant of the Field Artillery School, Major General Toney Stricklin, searched for ways to continue TAD because of the need to digitize towed artillery and to abandon wire and aiming circles and even suggested taking a block approach at the minimum to develop the TAD but retired before a final decision was reached.[109]

After succeeding General Stricklin in August 2001, Major General Michael D. Maples evaluated three different courses of action for TAD. He could recommend terminating and restarting the program, funding a block approach, or pushing for a full development program. Each had strengths and weaknesses. Because terminating and restarting the program ran the risk of losing all funding and presented other problems, General Maples rejected it. Pushing for the full TAD also presented the possibility of losing the entire program because of funding issues. As a result, General Maples opted for a two-block approach. Based upon Airborne Corps Airborne/Air Assault package requirements, block one TAD would have objective hardware

[109]Email msg, subj: 3002 Command History - LW155, 12 Mar 02, Doc III-110; Interview, Dastrup with Yager, 1 Feb 02; Email msg with atch, subj: LW155, 7 Mar 02; Briefing, subj: LW 155 and TAD, 1 Oct 01, Doc III-111; Briefing, subj: Army Calls Howitzer Vital to Future Combat System-Army Officials Briefed at Executive Level Review, 29 Jun 01, Doc III-112.

and limited software to provide limited communication capabilities with the fire direction center and would be fielded in 2006. Block two TAD would be the objective hardware and objective software and would be fielded sometime after block one had been introduced. Late in the fall of 2001, General Yakovac accepted the block approach but cautioned the Field Artillery School and General Maples that they might have to live with only block one because of funding. Even so, work began on block one hardware and software late in 2001.[110]

[110]Email msg with atch, subj: LW155, 7 Mar 02; Interview, Dastrup with Yager, 1 Feb 02; Briefing, subj: LW 155 Howitzer and TAD, 1 Oct 01; Interview, Dastrup with Doug Brown, Dep Dir, TSM Cannon, 4 Feb 02; Email msg, subj: 2001 Command History - LW155, 12 Mar 02.

Problems with the EMD howitzers, the test community, and TAD caused Program Manager for LW 155, Colonel John Garner (USMC), who took over as the Joint Program Manager of LW 155 in September 2001 from Colonel Stephen Ward (USMC) and answered directly to General Yakovac and the U.S. Marine Corps Ground Systems Manager, Brigadier General J. Feigley, to restructure the program. First, he integrated the development schedules of TAD and LW 155 so that everyone involved could see where the two efforts overlapped and where they diverged. This allowed events with both programs to be scheduled or rescheduled to match them together better. Second, Colonel Garner physically integrated the TAD and LW 155 offices. Previously, they had been located in separate parts of the building. These two actions promised to produce a better coordinated development effort in the coming months and years.[111]

The M119A1 Towed 105-mm. Howitzer Light Artillery System Improvement Program

Largely through the efforts of the personnel at Fort Bragg, North Carolina, the 82nd Airborne Division obtained funding in the Program Objective Memorandum for the M119A1 Towed 105-mm. Howitzer Light Artillery System Improvement Program (LASIP) to provide some needed changes to the howitzer to make it more easily maintained and more operationally suitable. Initial funding came in Fiscal Year (FY) 1998 and envisioned about one million dollars annually for five years to accomplish the desired improvements. The Army later extended program to the sixth

[111]Email msg with atch, subj: LW155, 7 Mar 02; Interview, Dastrup with Yager, 4 Feb 02; Email msg, subj: LW 155, 6 Feb 02, Doc III-113; Email msg, subj: Program Manager, 6 Feb 02, Doc III-114.

year.[112]

[112]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 115-16.

As planned, the improvements would be made in two block modifications. Block one would consist of adding a low temperature recuperator, improving the braking system with a larger commercial brake design, adding trail lifting handles to help crewmen emplace and displace the weapon, providing a trail-end step to preclude damage to the brake master cylinder, and improving the trunnion adapter by incorporating a stronger and more durable design for mounting the fire control components, among other things. Block two would include redesigning the elevation gearbox, incorporating a new rammer/extractor tool to replace the M102 105-mm. towed howitzer design, removing the compensating tubes in the recuperator, providing direct linkage with the primary recoil buffer, providing a firing platform reshroud kit, and providing a roll bar to protect the fire control mounts during air drop and air assault operations. Completion of block two modifications was scheduled for FY 2002 with fielding completed in FY 2004.[113]

The Army attached an additional improvement to block two in 2001. It included the retrofit of all fire control instruments that contained radioactive tritium for a light source. The tritium would be replaced with light emitting diodes (LED) that would require a very low energy source. LEDs would provide a much brighter source of light to view the collimator, the alignment device, and the howitzer level vials. The battery life of upwards of one year would be the norm for operations at night or during periods of low visibility. The additional improvements would not be completed until FY 2004.[114]

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[113]Ibid.; Email msg with atch, subj: M119LASIP and M198 HIPE, 22 Feb 02, Doc III-115.

[114]Ibid.

The M198 155-mm. Towed Howitzer Improvement Program and Enhancements

The M198 155-mm. Towed Howitzer Improvement Program and Enhancements (HIPE) program originated with the development of a prototype subsystem that used an electric pump to pressurize the M198 hydraulic system used to raise and lower the howitzer wheels quickly. The electric motor was powered by means of a cable from the prime mover. This prototype subsystem could raise or lower the howitzer wheels in about thirty seconds in comparison with the two and one half minutes required by two cannoneers pumping manually. This subsystem known as the Hydraulic Power Assist Kit together with some other initiatives was funded in the Program Objective Memorandum as the HIPE Program. The program consisted of the following initiatives: the hydraulic power assist kit, a trail-mounted power distribution system, and a bogey wheel to be placed under the weapon trails to assist loading the weapon on U.S. Air Force aircraft for air loading and to permit moving the howitzer on hard surfaces with a much lighter truck than the standard five-ton truck. Other improvements included an airborne/air assault upgrade that would have a trail-mounted power supply, a radio for linkage to the fire direction center, the elimination of the wire linkage to a command and control installation, a longer communication range, and an antenna, voltage regulator, and recharge capability.[115]

With the advent of the Initial Brigade Combat Team (IBCT) concept by the Chief of Staff of the Army, General Erik K. Shinseki, the Army selected the M198 to be fielded to the IBCT field artillery battalion. The IBCT battalion would be organized as three, four-gun batteries with the M198 being an interim solution until the fielding of the new towed Joint Lightweight 155-mm. Howitzer. The first IBCT field artillery battalion was the 1-37th Field Artillery at Fort Lewis, Washington; and the second would be organized at Fort Lewis sometime around April 2002.[116]

Multiple-Launch Rocket System

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[115]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 116-17.

[116]Email msg with atch, subj: M119LASIP and M198HIPE, 22 Feb 02, Doc III-115.

Munitions. Improvement efforts with the Multiple-Launch Rocket System (MLRS) focused on enhancing the munitions to give them better range and precision and making the launcher more responsive. Although MLRS performed well during Operation Desert Storm in 1991, its rockets and their submunitions raised serious concerns. During the war, many Iraqi artillery assets outranged their coalition counterparts, including MLRS. Also, the high dud rate of munitions, including MLRS submunitions, raised apprehensions about the safety of soldiers passing through impact areas. Together, the proliferation of rocket systems with greater ranges than MLRS and the unacceptable dud rate led to the requirement for an extended-range (ER) MLRS rocket with a range of forty-five kilometers and a lower submunition dud rate. Such a range would increase the commander's ability to influence the battlefield at depth and to fire across boundaries and simultaneously would improve the survivability of launcher crews.[117]

[117]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 117.

Given this need, the Army moved ahead with developmental efforts on the ER-MLRS M26A1 rocket loaded with the M85 grenade with a self-destruct fuze. After the M85 grenade had demonstrated a reduced dud rate that satisfied the requirement, the Army moved the rocket into low-rate initial production in 1997 with operational testing in Fiscal Year (FY) 1998. Although the ER-MLRS rocket successfully passed the operational tests for range and accuracy in 1998, funding constraints and the decision to transition to a Guided MLRS rocket with more accuracy limited production of the ER-MLRS to less than five thousand rockets. Because equipment that could produce the M85 grenade at the desired quantity rates was unavailable, the Army started fielding the ER-MLRS M26A2 rocket loaded with the M77 dual purpose improved conventional munition (DPICM) with a standard fuze to U.S. Forces, Korea, in 1999 to meet their urgent need for extended-range capability. After the production equipment could be validated and could actually generate the needed quantities of M85 grenades, the remaining quantities of ER-MLRS rockets would be loaded with the M85 grenade and would be designated the M26A1 rocket. Funding cutbacks in 1999-2000 and the expense of the M85 grenade, however, caused the Army to produce the ER MLRS rocket with the M77 munition and to decide against producing and fielding an ER-MLRS M26A1 rocket with the M85 grenade.[118] As the Army worked to introduce the ER-MLRS rocket, it decided to adopt an extended-range Guided MLRS rocket that could be fired from the M270A1 MLRS Launcher and High Mobility Artillery Rocket System (HIMARS) Launcher. Writing in Army in September 1996, the Commandant of the Field Artillery School, Major General Randall L. Rigby, explained the reasoning behind the decision to develop the extended-range Guided MLRS rocket. In recent years the Army's ability to protect itself from long-distance attack had been eroded with the proliferation of long-range rocket and cannon systems. To counter this the U.S. Army Missile Command's Research, Development, and Engineering Center with support from private industry initiated work on an extended-range guided rocket for the MLRS to replace ER-MLRS in the twenty-first century. Unlike the accuracy of the traditional free-flight MLRS

[118]Ibid., pp. 117-18; Memorandum with atch for Dir, TSM RAMS, subj: Coordination of 2001 USAFACFS Annual Command History, 5 Mar 02, Doc III-116..

rocket that degraded as the range to the target increased, the guided rocket's guidance system would provide consistent, improved accuracy from a minimum range of fifteen kilometers to a maximum of sixty to seventy kilometers, depending upon warhead weight and type of propellant, to attack area and point targets. The extended-range Guided MLRS rocket would also enhance the ability to conduct precision strikes, would reduce the number of rockets required to defeat a target, and would give the MLRS an additional fifteen kilometer range beyond the ER-MLRS. Such a range would permit hitting more targets and/or would make the MLRS more survivable because it could be positioned farther from the target. Given the need for the rocket, the Army awarded a contract to Lockheed Martin Vought Systems in November 1998 for a four-year, five-nation (United Kingdom, France, Italy, Germany, and the United States) engineering and manufacturing development (EMD). Based upon successful testing, low-rate initial production would begin in 2002 with the first unit equipped scheduled for 2004. Because technical problems arose in 2000 and caused the program to slip, the first unit equipped was moved back to 2006.[119]

This restructured schedule and rising production costs in 2000-2001 caused the Army to hold a Special Army Systems Acquisition Review Council in November 2001 to justify further development. As an integral part of the review, the Nunn-McCurdy Act of 1982 required the Army to determine if the system was essential to national security, to calculate the availability of an alternative with equal or greater capability, to ascertain if the program was adequately staffed to control costs, and to assess if unit costs were reasonable. If the Army failed to answer the

[119]2000 USAFACFS ACH, pp. 118-19.

questions satisfactorily, then development could be stopped. The review favorably answered the questions; and development continued in 2001 with an initial operational capability of 2006.[120]

[120]Email msg with atch, subj: GMLRS, 15 Mar 02, Doc III-117; Email msg with atch, subj: MLRS Munitions, 25 Feb 02, Doc III-118; Fact Sheet, subj: Biography of Dave McCurdy, undated, Doc III-119; Email msg with atch, subj: Special ASARC Briefing of 18 Sep 01, Doc III-126; Interview, Dastrup with Froysland, 11 Feb 02; Fact Sheet, subj: Guided MLRS Rocket, late-2001, Doc III-120.

Against this backdrop, engineering and developmental testing occurred in 2000 and 2001. In November 2000 the Army successfully tested the extended-range Guided MLRS rocket at White Sands Missile Range, New Mexico, in a pre-engineering firing. Launched from an Improved Positioning Determination System (IPDS) M270 MLRS launcher, the rocket flew a ballistic trajectory and gave the Army and the contractor the opportunity to evaluate how the rocket left the launch pod and how the motor performed. Six months later in June 2001, the rocket passed another pre-engineering and development test flight designed to evaluate the tail fin deployment and rotation and nominal motor performance, among other issues. In November 2001 the Army conducted the first EMD test that provided additional insights into the overall performance of the extended-range Guided MLRS rocket. In December 2001 the second EMD flight test occurred. This time the inertial guidance system was employed to evaluate the guidance system package. Both the Inertial Measuring Unit (IMU) and the GPS collected data during the flights, but only the IMU provided guidance to the rocket. Overall, the rocket's performance in the two EMD tests exceeded the Army's and contractor's expectations, although the complete guidance system had not yet been tested.[121]

The extended-range Guided MLRS rocket, moreover, would be complemented by the smart MLRS tactical rocket with a maximum range of sixty to seventy kilometers. The smart

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[121]Memorandum with atch for Director, TSM RAMS, subj: Coordination of 2001 USAFACFS Annual Command History, 5 Mar 02; Email msg with atch, subj: GMLRS, 15 Mar 02; Email msg with atch, subj: MLRS Munitions, 25 Feb 02; Fact Sheet, subj: Lockheed Martin Continues Testing MLRS at White Sands, 6 Jul 01, Doc III-121; Fact Sheet, subj: Lockheed Martin's Guided MLRS Rocket Successful in White Sands Test, 14 Dec 00, Doc III-122; Interview, Dastrup with Jeff Froysland, TSM RAMS, 11 Feb 02, Doc III-123; Fact Sheet, subj: Lockheed Martin's Guided MLRS Rocket Successful in Second Ballistic Test at White Sands, 29 Jun 01, Doc III-124; Fact Sheet, subj: Lockheed Martin's Guided MLRS Rocket Successfully Completes Fire Engineering and Development Test, 8 Nov 01, Doc III-125; Email msg with atch, subj: Special ASARC Briefing of 18 Sep 01, Doc III-126; DOD News Release, 13 Mar 01, Doc III-127.

munition would be effective against a wide variety of high-value targets to include counterfire, air defense sites, and maneuver elements. In 1999, however, the Department of the Army terminated the smart MLRS rocket to save money for developing and fielding the Initial Brigade Combat Team as part of the Transformation of the Army effort to make the Army more strategically deployable. Although the Field Artillery School started rewriting the operational requirement document for the munition in 2000 as directed by the U.S. Army Training and Doctrine Command, it remained unfunded in 2000 and 2001.[122]

[122]Interview, Dastrup with Froysland, TSM RAM, 21 Feb 01; Email msg with atch, subj: MLRS Munitions, 25 Feb 02.

As the Army was dropping one MLRS rocket program, it explored the possibility of adding another in 1999. Looking at Kosova in 1999 and the need to reduce damage to civilian property and lives during combat operations, the Army required a more accurate MLRS rocket with a high-explosive, unitary warhead and investigated the possibility of acquiring the unitary rocket. Equipped with a extended-range Guided MLRS motor, the unitary rocket would be have a fuze with the capabilities of a proximity fuze, a point-detonating fuze, or a time-delay fuze, depending upon the target. The proximity fuze capability would give a large burst over the target. The point-detonating fuze capability would reduce the size of the burst and collateral damage because of the ground burst, while the time-delay fuze capability would permit the rocket to penetrate certain types of structures or targets and then detonate the rocket. Besides the availability of three different fuze capabilities with each having advantages and disadvantages, the unitary rocket would be equipped with an anti-jam guidance system to improve accuracy beyond even the extended-range Guided MLRS rocket. Because the Commandant of the Field Artillery School, Major General Toney Stricklin wanted to put money into a unitary projectile for the Crusader 155-mm. self-propelled howitzer under development and wanted to fund a smart MLRS rocket, the MLRS unitary rocket remained unfunded in 2000. The Army also failed to fund MLRS unitary in 2001 even though it approved an operational requirements document in November 2001 and although the School pushed for funding in 2001. The Transformation of the Army simply caused funds to be shifted to higher priority programs.[123]

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[123]2000 USAFACFS ACH, p. 120; Interview, Dastrup with Jeff Froysland, TSM RAMS, 11 Feb 02; System Training Plan for the Guided Unitary Rocket, undated, Doc III-128.

MLRS Launcher Upgrade. Meanwhile, two critical factors generated the drive to modernize the MLRS M270 launcher. Early in the 1990, the Army realized that the M270 launcher was growing obsolete with its electronic parts becoming more expensive and difficult to obtain by the twenty-first century. To combat the growing obsolescence, the Army initiated the Improved Fire Control System (IFCS) program in 1992 to replace dated electronic systems and to provide for growth potential for future munitions. Subsequently, the analysis of Operation Desert Storm of 1991 that was later supported by emerging North Korean tactics caused the Army to conclude that it needed a more responsive and survivable MLRS launcher to engage highly mobile targets. This led to the Improved Launcher Mechanical System (ILMS) program in 1995 to reduce reaction times by decreasing the time to aim, displace, and reload the launcher.[124] For several years the Improved Fire Control System and Improved Launcher Mechanical System modifications were two separate program elements. As a result of the integrated test program initiative, the Army combined the two programs in 1997. Together, the two modernization efforts would produce the M270A1 launcher early in the twenty-first century.[125]

Over the years, developmental work on the M270A1 launcher progressed. Based upon successful testing of the Improved Fire Control System and Improved Launcher Mechanical System early in 1998 to demonstrate that the deficiencies identified in 1997 testing had been fixed, the Program Executive Officer of Tactical Missiles, Brigadier General Willie Nance, approved low-rate initial production (LRIP) of forty-five launchers on 28 May 1998. At the same time he established a goal of conducting the initial operational test and evaluation in September 1999 and fielding the launchers in the fourth quarter of FY 2000.[126]

Because of rapidly changing technology that made the M270A1 launcher's 486-based computer processors obsolete, the Army decided to replace it with a Power PC processor and the VX Works operating system for the initial operational test and evaluation and the first unit

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[124]2000 USAFACFS ACH, p. 120.

[125]Ibid.

[126]Ibid.

equipped. As explained to acquisition officials in 1998 and 1999, the new computer would provide numerous advantages. It would increase the processing capabilities significantly, would expand random access memory (RAM) capacity from eight megabytes to thirty-two megabytes, would provide a sixty-four bit rather than a thirty-two bit processor, and would provide a cost reduction of $33,000 per launcher. Meanwhile, the VX Works operating system would provide state-of-the-art capabilities, would enhance software flexibility, and would significantly reduce software maintenance costs.[127]

[127] Ibid., p. 123.

Just as the LRIP M270A1 launcher was coming out and new computer systems were being added, the Army generated new system requirements as part of the drive for better situational awareness, which was the ability to know where everyone was on the battlefield. The growing concern with situational awareness forced M270A1 hardware to be replaced in the near future so that the MLRS launcher could interface with the tactical Internet, which was a system of computers, radios, and other communications equipment to simplify interoperability and provide combat vehicles with a common situational picture of the battlefield. The implementation of these improvements was scheduled for Fiscal Year 2004 to support the first digital corps.[128]

Data drawn from the training of the test crews early in 1999 showed that the soldiers were having problems with the launcher's modem for digital communications and as a result had to reconfigure their communications more often than appeared to be necessary. This problem with the digital communications, the immaturity of the VX system software, and the unavailability of LRIP-configured M270A1 launchers that were required for the initial operational test and evaluation prompted senior management officials in July 1999 to postpone the initial operational test and evaluation until May 2001. The delay would permit further maturation of the VX software and would allow using LRIP M270A1 launchers as planned rather than engineering and manufacturing development launchers that did not have the enhanced processors that could run the VX Works operating software that was planned for fielding.[129]

Meanwhile, the Transformation of the Army Campaign Plan caused the Army to revise the number of M270A1 launchers to be purchased. Initially, the Army had planned to buy 857 launchers. With the emphasis shifting to medium forces, the Army cut the number to 412 in 1999. These would go to the counterattack forces of the III Armored Corps. Subsequently in February 2001, the Army increased the number of launchers to 456 to ensure that sufficient systems were fielded to include U.S. Forces, Korea.[130]

In September 2000 system integration anomalies emerged

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[128] Ibid.

[129] Ibid., p. 124.

[130] Ibid.

that adversely influenced system functionality and operational safety. This forced the Army to move the early system integration testing phase from December 2000 to March 2001 and to reschedule initial operational test and evaluation from April/May 2001 to August/September 2001. To meet the new schedule, the contractor made numerous software fixes, while revised crew procedures during reload and maintenance operations were implemented to ensure soldier safety so that the system would be ready for testing in 2001.[131]

[131]Ibid., pp. 124-25.

In 2001 the M270A1 underwent testing as scheduled. Early in the year, the Army conducted a logistical demonstration test and followed this with a maintenance demonstration test. In April 2001 the Army held an Extended System Integration Test at Fort Sill to determine the system's readiness to enter into initial operational test and evaluation in August. Based upon the success of the integration test, the Army administered the a two-phase initial operational test and evaluation in the fall of 2001. The Army administered the ground phase at Fort Sill, Oklahoma, and the flight phase at White Sands Missile Range, New Mexico. Designed as a side-by-side comparison with the M270 launcher, the ground phase consisted of three, ninety-six hour operational scenarios. During the flight phase, the M270A1 launcher fired a variety of MLRS munitions (M26 basic rocket, M26A2 extended-range rocket, M28A1 reduced-range practice rocket, and M39A1 ATACMS Block 1A). In each phase soldiers from the 1-12th Field Artillery operated both the M270 and the M270A1 launchers. Based upon the results of the operational testing that was concluded in October 2001, the Army Evaluation Command deemed that the M270A1 was suitable and effective. The M270A1 demonstrated during the operational test that it was much more reliable and operationally effective than the M270.[132]

High Mobility Artillery Rocket System

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[132]Interview with atch, Dastrup with LTC Rocky G. Samek, TSM RAMS, 22 Jan 02, Doc III-129; Email msg with atch, subj: MLRS Launcher Upgrades, 3 Mar 02, Doc III-130.

After several years of development, the High Mobility Artillery Rocket System (HIMARS) made significant progress in 2000-2001.[133] As part of the Transformation of the Army effort, the Army decided to put the system in the Interim Division and Objective Division as a general support weapon and announced that six engineering and manufacturing development (EMD) HIMARS would be delivered in FYs 2001 and 2002 for testing by the Army and U.S. Marine Corps and that low-rate initial production would begin in FY 2003. Impressed by the exercise in July 2000 where HIMARS demonstrated its deployability and firepower and its need for a general support weapon system to furnish fire support in the early stages of amphibious operations, the U.S. Marine Corps decided in December 2000 to participate with the Army in the EMD phase by purchasing two EMD HIMARS for a two-year user evaluation program in 2002-2004. This brought the number of EMD HIMARS to be produced to eight.[134]

The Army and U.S. Marine Corps made several key decisions with HIMARS in 2001. Early in the year, the Marine Corps announced its plans for HIMARS. Upon receiving its two EMD HIMARS in 2002, it would form them into a platoon for early user training, would train the crew, and would refine techniques, tactics, and procedures and general support doctrine. The Army decided to put soldiers on the EMD launcher at Fort Sill during the summer of 2002 for an initial assessment of HIMARS Operational Requirements Document (ORD) key performance parameters. In the meantime, the Army revised its HIMARS fielding plan. The HIMARS ORD called for replacing the M198 towed 155-mm. howitzer with HIMARS by forming two battalions in the active component and fourteen battalions in the reserve component. To move the aging MLRS M270 launcher out of the inventory faster, the Army decided in 2001 to field HIMARS to the M270 units before replacing the M198s as initially intended with the exception of the first unit equipped being an M198 unit.[135]

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[133]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 125-30.

[134]Ibid., pp. 130-31; Email msg with atch, subj: HIMARS, 1 Mar 02, Doc III-131; Fact Sheet, subj: The Marine Corps Common-sense Approach to Fire Support, 24 Jan 01, Doc III-132.

[135]Memorandum with atch for Director, TSM RAMS, subj:

Army Tactical Missile System and Brilliant Antiarmor Submunition

During the 1980s and 1990s, the Army worked on the Army Tactical Missile System (ATACMS) Block II and soon coupled it with the Brilliant Antiarmor Submunition (BAT) in 1994.[136] BAT was designed to employ acoustic and infrared seekers to acquire, classify, and destroy moving armored combat vehicles deep within enemy territory (one hundred kilometers or more). BAT would have allocation logic to minimize the possibility of multiple BATs engaging a single vehicle and a large acquisition footprint to locate targets within four kilometers of the dispense point.[137]

Coordination of 2001 USAFACFS Annual Command History, 5 Mar 02; Interview, Dastrup with MAJ Lawrence J. Abrams, TSM RAMS, 22 Jan 02, Doc III-133; Email msg with atch, subj: HIMARS, 1 Mar 02.

[136]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 131-35.

[137]Ibid.

After successful testing during the late 1990s, the Army System Acquisition Review Council (ASARC) of December 1998 approved entry into low-rate initial production with ATACMS Block II BAT and prepared for the Defense Acquisition Board of February 1999, which had oversight responsibilities for the missile. Successful testing in 1999 led to awarding a low-rate initial production contract in the fall of 1999 with operational testing scheduled in 2000 and initial operational capability for 2001.[138]

During 2000, ATACMS Block II underwent successful testing. Based upon the results of an operational test ground in May 2000, the Army concluded that the command and control systems, computers, and target acquisition systems could support ATACMS Block II. Subsequently in August 2000 a test conducted at White Sands Missile Range, New Mexico, demonstrated the missile's ability to deliver the BAT submunitions to their targets accurately.[139]

However, the Deputy Undersecretary for Operational Research for the Army decided to suspend the operational testing for the ATACMS Block II BAT scheduled for 2001. He did not think that the BAT's seekers could meet the operational requirements and directed the Army to conduct two BAT drop tests and a missile shoot in 2002. If those tests proved to be successful, the ATACMS Block II BAT would resume operational testing.[140]

Meanwhile, the Army made critical changes to the BAT program. Although the original justification -- the Soviet and Warsaw Pact threat -- had disappeared with the end of the Cold War in the early 1990s, the requirement for BAT

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[138]Ibid.

[139]Ibid.

[140]Interview, Dastrup with MAJ Jay D. Stephens, TSM RAMS, 22 Jan 02, Doc III-134.

still existed. In 1994 Army noted that it had an inadequate capability to attack armored vehicles and surface-to-surface missile launchers beyond the range of close combat weapons. In addition, the Army had the urgent need for an autonomous, terminal homing submunition to defeat moving and stationary targets in the second echelon of the threat array.[141]

[141]2000 USAFACFS ACH, pp. 131-35.

In view of the requirement to attack stationary armored vehicles and surface-to-surface missile (SSM) transporter erector and launcher (TELS), the Army visualized the need for improving the BAT. The BAT Pre-Planned Product Improvement (P3I) would have the capabilities of attacking moving armor, stationary armor, hot or cold armor, SSM TELS, and heavy multiple rocket launchers; would be more capable in bad weather and against countermeasures; and would be carried by ATACMS Block IIA. Carrying six BAT submunitions rather than thirteen as the ATACMS II would, ATACMS Block IIA would have a range of one hundred to three hundred kilometers and would use a global positioning system (GPS) augmented guidance system that was similar to the one in the ATACMS IA and ATACMS II to improve accuracy. As planned in 1997 and 1998, the BAT P3I would also be fielded in the remaining ATACMS Block II missiles starting in FY 2005 rather than BAT. ATACMS Block IIA with BAT P3I would also have an initial operational capability of FY 2007.[142]

In 1999 the Chief of Staff of the Army, General Eric K. Shinseki, revamped the Army's priorities when he announced his intention to field a medium-weight brigade combat team in the near future that was part of the Transformation of the Army initiative. To find money for Army Transformation initiatives, the Army terminated ATACMS Block IIA along with other programs in 1999 to pay for higher priority Army initiatives. Rather than letting the ability to attack multiple rocket launchers (MRLs) and TELs disappear, the Army chose to integrate the capability of the P3I BAT into the ATACMS Block II and continued work on P3I BAT in 2000-2001.[143]

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[142]2000 USAFACFS ACH, pp. 131-35; Email msg with atch, subj: ATACMS Block II and BAT, 1 Mar 02, Doc III-135.

[143]2000 USAFACFS ACH, pp. 134-35; Interview, Dastrup

Firefinder Radars

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with Stephens, 22 Jan 02; "Army Weapons and Equipment," Army, Oct 00, p. 300, Doc III-136.

Because of the growing threat of counterfire from hostile fire support systems, the Army initiated action in 1984 to improve its AN/TPQ-36 and AN/TPQ-37 radars. The Army considered these radars to be too large and heavy for AirLand Battle and for use with the light forces that were being developed. Through product improvements the Army planned to field a mobile, survivable Firefinder radar to replace current ones in the target acquisition battery. To do this the Army created a block improvement program in 1985-1986 to integrate existing Firefinder radars into a single follow-on system that would be based on the Q-36.[144] The program eventually led to introducing the Q-36 Version 7/High Mobility Multipurpose Wheeled Vehicle that was fielded between 1993 and 1995 and the Q-36 Version 8 that was fielded beginning in Fiscal Year (FY) 2001 and would continue to be fielded into FY 2005 to the active component and Army National Guard.[145]

In the meantime, the Field Artillery School introduced another change to its counterfire radar system modernization program in 1990. Because the existing Firefinder Q-37 radar was based upon 1970s technology; lacked the range, survivability, mobility, and target processing and identification capability to support future requirements; was obsolete and vulnerable to enemy radar, radio intercept, and locating and jamming systems and because the Q-36 modernization effort would not meet all of the Field Artillery's radar requirements as initially planned, the School identified the need for developing the Advanced Target Acquisition Counterfire System (ATACS) to replace the Q-37. The Advanced Target Acquisition

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[144]1986 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Historical Review (AHR), p. 90.

[145]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 135.

Counterfire System would take advantage of leap-ahead technology to give the Army a passive system or, at a minimum, passive or active cuing, would reduce the equipment and manpower needs significantly, and would furnish support to the corps area of influence in AirLand Operations. In addition, it would be capable of driving on and off a C-130 and larger aircraft and air insertion by CH-47D and would reduce crew size from twelve to six to cut personnel costs.[146]

[146]1995 USAFACFS ACH, pp. 141-42.

As it fielded the Q-37 Block I that was an upgrade to the Q-37, the Army initiated developmental work on the Advanced Target Acquisition Counterfire Radar, renamed Advanced Firefinder System in 1992, the AN/TPQ-37 Firefinder Pre-planned Product Improvement (P3I) Block II in 1994, the AN/TPQ-37 Block II in 1996, and the AN/TPQ-47 in 1998. The Q-47 offered significant improvements over the existing Q-37. Utilizing advanced technology, the Q-47 would provide rapid and increased target location, improved accuracy, and enhanced target classification at greater ranges. At the same time it would significantly reduce equipment and personnel requirements and improve transportability, maintainability, and reliability for increased effectiveness on the battlefield. Besides this, it would furnish support to the entire corps area of influence with enhanced target processing and multiple friendly fire capability. Ultimately, the Q-47, would replace all Q-37s, including the Q-37 Block I, on a one-for-one basis and would meet the needs of a digitized battlefield.[147]

Funding issues quickly influenced the Q-47 program. Because the Department of the Army shifted so much funding to the Initial Brigade Combat Team effort, the Q-47 lost some funding in 2000, which slowed down development and caused the initial operational test and evaluation to be slipped from FY 2004 to FY 2006. Yet, the significance of the program and existing funding line caused the program to be placed under the oversight of the Office of the Secretary of Defense and to be possibly designated as an acquisition category (ACAT) II. This would involve moving it from a lower ACAT III ranking.[148]

Challenges continued to influence the Q-47 program. In February 2001 a new program manager revised the acquisition strategy to reduce risk to the program. He incorporated a limited user test in FY 2004 and a low-rate initial production of three systems in FY 2004 and six systems in FY 2005. Later in December 2001, the Raytheon, the contractor, reported problems with the power amplifier modules and technical difficulties with the antenna software integration and said that it could not meet the date set for the limited user test. This led to a Red Team

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[147]2000 USAFACFS ACH, pp. 135-37.

[148]Ibid., pp. 137-38.

being assembled and sent to Raytheon to assess the extent of the problems. Preliminary results from the assessment indicated that the program would have to be slipped back one year. In the meantime, the Department of Defense officially designated the Q-47 program as an ACT II in May 2001.[149]

Profiler

[149]Email msg with atch, subj: Firefinder Q-47 and Profiler, 26 Feb 02, Doc III-137; Email msg, subj: Firefinder Q-47 and Profiler, 26 Feb 02, Doc III-138.

In 1995 the U.S. Army Field Artillery School started working to replace the existing meteorological measuring set that used antiquated technology by obtaining data from radiosonde instrumentation carried aloft by balloons and sent back to a ground-based receiver with the Profiler. As the operational requirements documents, signed on 15 October 1996 by the U.S. Army Training and Doctrine Command explained, the Profiler would provide a modernized, real-time meteorological capability over an extended battle space out to five hundred kilometers and would provide vital target area meteorological information from a mesoscale model that acquired information from weather satellites, the current radiosonde, and the integrated meteorological system for the employment of smart weapons to ensure proper munition selection and optimal aiming. The Profiler would also furnish field artillery forces with current or expected weather conditions along the projectile trajectory and within the target area. In 2000 the Army let the contract for the system to the Environmental Technologies Group of Baltimore, Maryland, and issued a developmental schedule. Operational testing would be in Fiscal Year (FY) 2002. Production of ninety-two systems would begin in the fourth quarter of FY 2003, and the first unit equipment would be in the first quarter of FY 2004.[150]

Progress with the program moved forward in 2001. The Army changed the acquisition strategy to incorporate a limited user test during the first quarter of FY 2003 with a milestone C decision expected for the third quarter of FY 2003 and fielding to begin in the third quarter of FY 2004.[151]

The Bradley Fire Support Vehicle and Striker

Bradley Fire Support Vehicle. In 2001 the U.S. Army Field Artillery School (USAFAS) continued working on fielding the Bradley Fire Support Vehicle (BFIST) that was programmed to be the successor to the M981 Fire Support Vehicle (FISTV). Late in the 1970s, a U.S. Army Training and Doctrine Command (TRADOC) working group, Close Support Study Group (CSSG) II, met to optimize observed fire support for the maneuver forces. Besides reaffirming the

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[150]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 138.

[151]Email msg with atch, subj: Firefinder Q-47 and Profiler, 26 Feb 02, Doc III-139.

necessity of the Fire Support Team (FIST) that had been created in the mid-1970s to integrate fire support with the maneuver arms at the company level, the group recommended fielding a mobile fire support vehicle for reliable, secure communications.[152]

[152]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 138-39.

After funding became available early in the 1990s and after the maneuver arms got their Bradley fighting vehicles, equipping the Field Artillery with the BFIST became a reality and promised to solve the problems created by the M981 as illustrated by Operation Desert Storm.[153] As of 1995-1996, combat and materiel developers envisioned two models of BFIST (the M7 and M7A1) with each being a type-classified system. The M7 would integrate a fire support mission package onto a Bradley A2 ODS chassis. The fire support mission package initially included a laser designator (later removed as a requirement), a ring laser gyro and inertial navigation systems, a forward entry device, a lightweight computer unit, and associated components to process digital information. The M7 BFIST would also have a laser ranger finder, a global positioning system, a driver's thermal viewer, and a battlefield combat identification system (when it became available) to reduce the probability of fratricide.[154] With a scheduled fielding in 2004, the M7A1 would be more advanced and use a digitized Bradley M3A3 chassis with the fire support mission package. The M7A1 would have two second-generation FLIR sights. The second-generation FLIR on the M7A1 would double the target identification range of the first-generation FLIR on the M7.[155]

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[153]Ibid., pp. 140-41.

[154]Ibid., p. 141.

[155]Ibid., pp. 141-43.

After several years of work on BFIST, the project manager modified the acquisition strategy in 1999 for the M7A1 system by initiating an engineering change proposal to the M7 BFIST to develop it to the A3 BFIST and halted work on the M7A1. This meant that there would not be a M7A1 as initially expected. The A3 BFIST would be based on a digitized Bradley M3A3 chassis, would incorporate the M7 fire support mission package, and would be fielded in 2004 to counterattack units, such as the 4th Infantry Division. Thus, as of 2001, the M7 BFIST and the A3 BFIST existed as official Army endeavors to adapt the Bradley fighting vehicle to fire support missions. That year, the 3rd Armored Cavalry Regiment and the Field Artillery School received the M7. The A3 would be fielded shortly afterwards.[156] This was based upon successful testing in 2001.[157]

Striker. Meanwhile, the Combat Observation Lasing Team (COLT) also employed the M981 fire support vehicle. Besides lacking mobility and stealth, the M981 had been designed for armored and mechanized forces and presented a unique signature in forces that used High Mobility Multipurpose Wheeled Vehicles (HMMWVs) as their scout vehicles. In response to this discrepancy, TRADOC approved a change to the Fire Support Vehicle Operational Requirements Document in April 1997, written by the Field Artillery School, to leverage fire support vehicle technology for heavy and light forces. In the Operational Requirements Document the Field Artillery School retained the BFIST for the heavy forces and urged developing a vehicle with BFIST mission capabilities for the COLT by integrating the fire support mission equipment package onto a HMMWV chassis, known as the Striker. This would provide the COLT with unprecedented mobility, flexibility, and stealth. Also, the Striker would be less noticeable

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[156]Ibid.; Email msg, subj: BFIST/Striker, 27 Feb 02, Doc III-140; Interview, Dastrup with CPT Robert S. Hribar, Material and Training Integration, FDIC, 19 Feb 02, Doc III-141; Fact Sheet, subj: Bradley Program Overview, 5-7 Jun 01, Doc III-142; Fact Sheet, subj: BFIST, 2002, Doc III-143; Memo, subj: None, undated, Doc III-144.

[157]Fact Sheet, subj: Bradley Program Overview, 5-7 Jun 01.

because it would present a common signature, would save Bradley assets for fire support teams, and would lower operating costs for the COLT. Based upon its performance in the Task Force XXI Advanced Warfighting Experiment of March 1997, the Striker vehicle, as well as the Striker concept that furnished six Striker vehicles to each heavy maneuver brigade, was adopted by the U.S. Army and was approved as a Warfighting Rapid Acquisition Program (WRAP) by the Chief of Staff of the Army on 14 May 1997. This meant development and fielding could be accelerated.[158]

[158]2000 USAFACFS ACH, p. 144.

In July through October 1998 the Army conducted customer testing on a prototype Striker vehicle at the Yuma Proving Ground, Arizona, as a result of WRAP. Although testing revealed daytime vision to be good, nighttime vision failed to meet the requirements. Equipped with a Ground/Vehicle Laser Locator Designator (G/VLLD) with a first-generation Forward-Looking Infrared (FLIR) thermal night sight, the Striker lacked the ability to see far enough in the night during testing. Even so, the Army approved low-rate initial production on 30 September 1998 with the caveat that the night vision capability had to be extended to meet the requirement and scheduled the first major test in the second quarter of FY 2000.[159]

In 1999-2001 several critical events with Striker occurred. Early in 1999, the Army type-classified the system as the M707 Striker and conducted a successful air drop test to demonstrate Striker's ability to be dropped from an aircraft. Also, the contractor built three prototypes that went through successful developmental and operational testing in 2000 by the 4th Infantry Division, which would also be the first unit equipped. The following year, the Army fielded Striker to the 3rd Armored Cavalry Regiment, the Field Artillery School, and Army National Guard units in South Carolina, Oklahoma, and Arkansas. Equally important, the Army decided to equip the first Initial Brigade Combat Team with Striker in lieu of the Fire Support Vehicle variant of the Interim Armored Vehicle because the latter would not be ready for the brigade's operational test in 2002. When the first Initial Brigade Combat Team received their Fire Support Vehicle's late in 2002, the Striker would then be available to field another

[159]Ibid., pp. 144-45.

unit.[160]

The Lightweight Laser Designator Rangefinder

[160]Ibid., p. 145; Interview, Dastrup with Hribar, 19 Feb 02; Email msg, subj: BFIST/Striker, 27 Feb 02.

Early in the 1990s, fire supporters employed the Ground/Vehicular Laser Locator Designator (GVLLD) to lase targets for location and precision-guided munitions. The system weighed 107 pounds, reduced the mobility of light fire support teams, did not meet their needs, and was not a man-portable system. In response to this situation and the lack of a man-portable system to designate targets, the U.S. Army Field Artillery School wrote an Operational Requirements Document that was approved in February 1994 by the U.S. Army Training and Doctrine Command (TRADOC) to replace the GVLLD with the Lightweight Laser Designator Rangefinder (LLDR). Although the LLDR remained unfunded for several years, the School still pursued it. Combining technological advances in position/navigation (Precision Lightweight Global Positioning System), thermal sights, and laser development, the LLDR would be a lightweight, compact, man-portable system designed for dismounted or mounted operations. Besides determining range, azimuth, and vertical angle, the LLDR would permit light forces to perform fire support functions quickly and accurately on a fast-paced, less dense, and more lethal battlefield and would offer the best alternative to the GVLLD. Because of its modular design, it could be readily tailored to the mission. In its target location configuration the LLDR weighed about twenty pounds and had the ability of locating targets accurately out to ten kilometers and seeing the battlefield with a near, all-weather capability at shorter ranges. An integrated thermal night-sight would provide continuous day/night operations and the ability to see through obscurants, such as fog and smoke. If needed, the LLDR could be configured with a separate laser designator module to designate moving and stationary targets for precision munitions. This configuration would increase the system's weight to thirty-five pounds. Equally important, the LLDR could be used in training environments because of its eye-safe rangefinder.[161]

Although LLDR passed the initial operational test and evaluation in 2001, testing revealed some deficiencies. The Army developed a corrective action plan; and LLDR program proceeded to milestone III where the Army made the decision to move into low-rate initial production (LRIP). The 82nd Airborne Division was scheduled to receive the

[161]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 145-46.

engineering, manufacturing, and development (EMD) and LRIP production models, but the terrorist attacks on 11 September 2001 on the World Trade Center in New York City and the Pentagon influenced the Army to shift fielding priorities. Instead, the Special Operations Command was fielded with the EMD models, while the 82nd Airborne Division and the Interim Brigade Combat Team were scheduled to share sixty-six LRIP models.[162]

The Gunlaying and Positioning System

[162]Email msg with atch, subj: LLDR, 28 Feb 02, Doc III-145; Interview, Dastrup with MAJ Karen P. Walters, Chief, Fire Support Programs, Requirements, Determination, Developments Integration Division (RDDI), 19 Feb 02, Doc III-146; Fact Sheet, subj: Contracts, 23 Oct 01, Doc III-147.

In 2000-2001 the Field Artillery School continued working on the Gun Laying and Positioning System (GLPS). For years the field artillery battalion provided survey. This meant that towed howitzer batteries and M109A5 155-mm. self-propelled howitzer batteries had to wait for conventional survey to be furnished by the battalion, which was time consuming and inefficient, in order to furnish accurate fires. In light of this, the Field Artillery School wrote an Operation Requirements Document that was approved by TRADOC in July 1993 for the GLPS. The system would be a tripod-mounted positioning and orienting device that consisted of a gyroscope, an electronic theodolite, an eye-safe laser rangefinder, and a Precision Lightweight Global Position System Receiver and that would give the battery autonomous positioning and directional capability. Lightweight and mobile, the GLPS established an orienting station, allowed the battery commander to position and orient his howitzers accurately and rapidly, and permitted retaining the unreliable and old Positioning and Azimuth Determining System in reserve as a backup. Based upon its performance in Task Force XXI Advanced Warfighting Experiment of March 1997, GLPS was approved to be part of the Army's Warfighting Rapid Acquisition Program, which would expedite fielding.[163]

After testing was completed in 1998 and 1999, the Army started fielding GLPS. Fielding began with the active Army in 1999 and continued with the Army National Guard in 2000-2002. In the meantime, the growing need to reduce the amount of work by the survey team in light units, the Army planned to expand the number of GLPSs from one per battery to two per battery so that each platoon would have one. Including a battalion float, each battalion would have seven GLPSs.[164]

Advanced Field Artillery Tactical Data System

Because Tactical Fire Direction System (TACFIRE) was large, heavy, and based on 1950s and 1960s technology, the Army took steps to replace it. In response to a memorandum of 13 November 1978 from the Office of the Undersecretary of Defense for Research and Engineering that authorized a new computer for fire support command, control, and

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[163]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 147-48.

[164]Ibid.

communications, the Army initiated work on a successor system that would optimize operational efficiency, simplify training, ease maintenance requirements, reduce life cycle costs, and improve survivability. After additional work the Army and the Department of Defense (DOD) in 1981 approved developing the Advanced Field Artillery Tactical Data System (AFATDS) to replace TACFIRE as part of the Army Tactical Command and Control System (ATCCS), which would be a family of computers, peripherals, operating systems, utilities, and software to support each individual battlefield operating system.[165]

[165]2000 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), pp. 148-49.

After a decade of work on the hardware and the software that was fraught with many developmental delays, the Army decided to field AFATDS but to introduce it incrementally in versions with each building on the previous to get the system to the field sooner.[166] On 27 April 1990 the Army signed the full-scale development contract with Magnavox for version one (later renamed AFATDS 96) software. Fielded in 1996-1997, version one (AFATDS 96) updated the software developed for the concept evaluation program that had been conducted late in 1989, provided initial functionality at all echelons of fire support from the corps to platoon level, and integrated field artillery, mortar, naval gunfire, and close air support into planning and execution functions. Version two (later renamed AFATDS 97) software would have more capabilities than version one (AFATDS 96), while version three (later renamed AFATDS 00) would have even more capabilities than the other two versions and would meet the objective system requirements.[167]

To accommodate growing requirements the Army revamped the AFATDS fielding schedule in 1996. The Army planned to field three different variations of AFATDS version two between 1997 and 1999 as AFATDS 97, AFATDS 98, and AFATDS 99 and version three AFATDS software in 2000 as AFATDS 00. Fielded in 1998 after developmental delays, AFATDS 97 furnished corps and echelons-above-corps functionality, modified MLRS/Army Tactical Missile System (ATACMS) command

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[166]Ibid., pp. 149-50.

[167]Ibid., pp. 150-51.

and control processes, and enabled the Field Artillery to plan and execute deep battle operations faster and safer than ever before.[168]

[168]Ibid., pp. 151-52; Information Paper, subj: AFATDS, 2000, Doc III-148.

As planned, AFATDS 98, AFATDS 99 (renamed A99 in 2000), and AFATDS 00 (renamed AFATDS Version Seven in 2000 to match Army Battlefield Control System numbering) provided additional capabilities. Scheduled for release in 1998, AFATDS 98 would concentrate on U.S. Marine Corps/joint functionality, meet Department of Defense computing standards, and facilitate greater interoperability among the services. AFATDS 99, scheduled to be released in 1999, would begin the move toward technical fire direction on a single platform by building direct interfaces with MLRS and Paladin, while AFATDS 00 would be the objective system and would be released in 2002. AFATDS 00 software would automate all specified fire support tasks developed at the Field Artillery School. Moreover, AFATDS would operate in the fire support element and fire support coordination centers of the supported maneuver force and field artillery command posts, fire direction centers, and selected field artillery elements throughout the command structure to furnish integrated, responsive, and reliable fire support.[169]

After completing developmental work, the Army fielded AFATDS 98 that was the first AFATDS software version to address specific U.S. Marine Corps requirements.[170] Once software deficiencies had been corrected, the Army fielded AFATDS Version 98 in 2000. During the year, new equipment training teams fielded AFATDS 98 to the 17th Field Artillery Brigade, the 214th Field Artillery Brigade, the 75th Field Artillery Brigade, the 18th Field Artillery Brigade, and the 10th Mountain Division, retrofitted the 82nd Airborne Division Artillery and the 101st Airborne Division (Air Assault) Artillery, which had received AFATDS 97 in 1998 along with other units, with AFATDS 98, and furnished new equipment training. By the end of 2001, four

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[169]2000 USAFACFS ACH, pp. 151-52.

[170]Ibid., pp. 153-54.

battlefield coordination detachments, four corps artilleries, seven active component divisions, the 1-37th Field Artillery of the Initial Brigade Combat Team, two fire support elements/deep operations coordination cells, and seven field artillery brigades had AFATDS 98.[171]

[171] Ibid.; Interview with atchs, Dastrup with William Sailers, Dep Dir, TSM FATDS, 20 Feb 02, Doc III-149; Email msg with atch, subj: AFATDS, 5 Mar 02, Doc III-150.

As AFATDS 98 was being fielded to these active component units and reserve component units, work on AFATDS A99 continued with a limited user test early in 2001 and with a follow-on test later in the year, but technical difficulties slowed down development and pushed fielding back a year from 2001 to 2002.[172] Upon completion AFATDS A99 would reorganize and simplify menus and windows, would streamline plain text message access, would enhance alerts, would create shortcuts, and would incorporate technical fire direction. Ultimately, the new capabilities would permit eliminating the Battery Computer System (BCS) for cannon field artillery and Fire Direction System (FDS) for the Multiple-Launch Rocket System (MLRS). Equally as important, AFATDS A99 would be easier to train on than AFATDS 98 and would have improved interoperability with other Army Battlefield Control Systems (ABCS). A99 was also scheduled for initial interoperability testing in 2002 with several allied systems including the French ATLAS, the German Adler, the Italian SIR, and the United Kingdom Bates as a part of the Artillery Systems Cooperative Activity.[173]

DEPTH AND SIMULTANEOUS ATTACK BATTLE LABORATORY

Theater Precision Strike Operations Advanced Concept Technology Demonstration

On 21 November 1997 the Department of Defense (DOD) approved the Theater Precision Strike Operations (TPSO) Advanced Concept Technology Demonstration (ACTD) as a new start for Fiscal Year (FY) 1998 that would run for six years in response to the Joint Forces Land Component Commander's requirement for an enhanced capability to conduct theater precision engagements and fires. In FYs 1999 and 2000 demonstrations and exercises evaluated existing hardware and software applications and emerging technologies on a synthetic battlefield that incorporated live, virtual, and constructive simulations to provide

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[172]2000 USAFACFS ACH, pp. 154-55.

[173]Ibid., p. 155; Interview with atchs, Dastrup with William Sailers, Dep Dir, TSM FATDS, 20 Feb 02; MAJ Richard H. Owens, "ARNG Fielding AFATDS," Field Artillery, Jan-Feb 02, p. 21, Doc III-151; Point Paper, subj: AFATDS, 13 Nov 00, Doc III-152; Fact Sheet, subj: AFATDS, 2001, Doc III-153; Information Paper, subj: AFATDS, undated, Doc III-154; Email msg with atch, subj: AFATDS, 5 Mar 02.

operational-level warfighting capabilities that would improve the strike planning process, would expand shared situational awareness, would increase joint and combined interoperability, and would improve transition to reinforcement. At the same time the demonstrations would provide leave-behind capabilities with U.S. forces in Korea.[174]

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[174]1997 U.S. Army Field Artillery Center and Fort Sill (USAFACFS) Annual Command History (ACH), p. 63; Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155; Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01, Doc III-172, 2000 USAFACFS ACH; Email msg with atch, subj: TSPO History Piece, 8 Mar 00, Doc III-136, 1999 USAFACFS ACH; Fact Sheet, subj: Theater Precision Strike Operations, Apr 99, Doc III-137, 1999 USAFACFS ACH; Memorandum for Record, subj: Battle Lab Input to 1998 Annual Command History, 22 Mar 99, Doc III-96, 1998 UAFACFS ACH.

In 2000 the Depth and Simultaneous Attack Battle Laboratory continued its efforts to refine tactics, techniques, and procedures (TTP) and TPSO systems and furnished extensive support in key exercises (Foal Eagle; Reception, Staging, Onward Movement, and Integration; Summer Exercise and Ulchi Focus Lens). These exercises provided an opportunity to display new capabilities and to assess the application utility. The new capabilities provided automated methods for deconflicting airspace, updating information on approved target nominations, performing predictive battle damage assessment, and visualizing terrain.[175]

The Battle Laboratory also continued to enhance the interoperability of forces supporting the United States Force, Korea (USFK) mission in 2001. Interfaces between Army and Air Force systems were being developed to enhance deliberate targeting and time critical targeting processes. Efforts were made (and would continue to be made) to connect with U.S. Marine Corps systems for theater visibility and to enhance their inter-service processes. Work also continued to co-host the Army Deep Operations Coordination System on the Global Command and Control System - Korea for the Theater and Global Command and Control System - Army for other Army forces.[176]

The Battle Laboratory continued to integrate entity-level fire support simulation into the Corps Battle

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[175]Email msg with atch, subj: BL History, 1 Mar 02; Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01.

[176]Ibid.; Email msg with atch, subj: BL History, 1 Mar 02.

Simulation to improve training of fire support tasks during the Korean exercises and the Theater Precision Strike Operations Advanced Concept Technology Demonstration. The effort included initiatives to allow tactical command and control systems to communicate with simulations and to field the Fire Support Simulation Trainer to Korea and updates to simulation models.[177]

Fire Support Combined Arms Tactical Trainer

[177]Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01; Email msg with atch, subj: TSPO History Piece, 8 Mar 00.

After the last of thirty-four Fire Support Combined Arms Trainer (FSCATT) M109A5 variants had been fielded in 2000, the Gunnery Department received the first three of four FSCATTs on 11 September 2001 with the fourth scheduled to be received in April 2002. One month later on 26 October 2001, the Depth and Simultaneous Attack Battle Laboratory held a FSCATT M109A6 variant ribbon cutting ceremony hosted by the Assistant Commandant of the Field Artillery School, Brigadier General David D. Ralston.[178]

On 24 August 2001, in the meantime, L3 Link Communications unveiled and demonstrated a towed howitzer simulation device known as the Fire Support Combined Arms Tactical Trainer-Towed (FSCATT-T). L3 Link Communications funded the development effort and modified FSCATT software to interface with the Forward Observer Trainer and the Van Halteren Metall Appended Training Device. Van Halteren Metall, who had produced and fielded howitzer crew trainers in several European countries, modified a Netherlands Army howitzer crew trainer device to interface with the towed M198 155-mm. howitzer carriage. The FSCATT-T met previously unfunded requirements for training towed artillery units, including the direct support battalion in the Initial/Interim Brigade Combat Team. The demonstrated FSCATT-T exceeded the requirements detailed in the FSCATT Operational Requirement Document, dated 25 March 1993. The FSCATT-T, as currently configured, had application to both the M198 and XM777 towed 155-mm. howitzers. Furthermore, because M198 howitzer units were scheduled to transition to the XM777, their FSCATT-T training devices could be removed from the M198 carriage and mated to the XM777 carriage with nominal modifications. A total of eighty FSCATT-Ts would be required to field all artillery units. A platoon set of FSCATT-T trainers per battalion would facilitate "training to fire" and not "firing to train" in towed artillery units.[179]

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[178]Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155.

[179]Email msg with atch, subj: BL History, 1 Mar 02.

Future Fires Command and Control Concept Evaluation Program

From 22 May 2000 to 9 June 2000 and 18 October 2000 to 3 November 2000, the Future Fires Command Control (F2C2) Concept Evaluation Program (CEP) conducted experiments at the Depth and Simultaneous Attack Battle Laboratory to examine operational systems and personnel requirements for the organizational transformation (separating command from fire control) and effects management (effects-based fires and the assessment of the Fires and Effects Coordination Cell) in the Interim Brigade Combat Team (IBCT), which were two key tenets of the U.S. Army Field Artillery Vision. The experiment employed a fires test bed to provide the operational setting for the experimentation. The test bed consisted of two command post vehicle mock-ups, a surrogate battle command system, and a crew access unit for voice communication. An interactive simulation furnished the synthetic theater of war (STOW) environment set in a Balkan scenario. The STOW was established using four simulation systems: The Joint Conflict and Tactical Simulation (JCATS) that simulated maneuver, engineer, army aviation, and close air support systems; FIRESIM XXI for fire support systems; the Extended Air Defense Simulation (EADSIM) for intelligence and reconnaissance information from echelons above division; and the Multiple Unified Simulation Environment (MUSE) that was an unmanned aerial vehicle simulation for brigade-level reconnaissance. These systems interacted with the surrogate battle command system, Future Fires Decision Support System (F2DSS), designed for this experiment to support execution of future fires concepts. Player-controller cells provided the stimulation to the command posts and conducted operations from the JCATS and FIRESIM XXI workstations.[180]

In a series of vignettes designed to replicate Stability and Support Operations (SASO) and Major Theater of War (MTW) operations in the Balkans, the laboratory evaluated the procedures for information management at the IBCT Fires and Effects Coordination Cell (FECC) and for the usability and functionality of the F2DSS. The F2DSS was employed in a networked environment that allowed all users to operate from a common operational picture that was

[180]Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01, Doc III-172, 2000 USAFACFS ACH; Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155.

populated by a distributed database, which included a set of graphical decision-making tools for planning and executing battle management functions (situational awareness, distributed planning, and terrain analysis). Battle Laboratory leaders anticipated that streamlining and flattening organizations combined with enabling information technologies would improve performance by promoting shared situation understanding, improving asset visibility and sensor-weapon pairings, and eliminating redundancy in the tactical fire control process to decrease sensor to shooter time. The insights gained from the experiment supported this and, in particular, highlighted the importance of linking intelligence, targeting, and attack assets available to the IBCT.[181]

[181]Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01; Email msg with atch, subj: BL History, 1 Mar 02.

In summary, the IBCT FECC structure and functions were realigned after the first experiment and validated in the second experiment, such that effects-based fires were generated by the FECC as it controlled cannon, rocket, attack aviation, and close air support lethal effects and electronic warfare and psychological operations non-lethal effects. The F2DSS common operational picture improved battlefield visualization and facilitated distributed operations, allowing command posts to share information essential to mission accomplishment. The use of this advanced technology permitted the staffs to shift their focus from information gathering and updating to collaboration and problem solving.[182]

Striker II

The Striker II Concept Experimentation Program (CEP) for Fiscal Year (FY) 2000 provided the Brigade Combat Team (BCT) with a Common Reconfigurable Sensor System (CRSS) that would be integrated with the Army Battle Command System (ABCS) and long-range (50 to 100 km) high-frequency radio communication systems. This CEP was designed to validate the concept and the achievable accuracy of a common, stabilized, multi-sensor Gimbal and to demonstrate the long-range capabilities of data and imagery transmission. A CRSS-equipped vehicle would support accurate long-range targeting and high-speed data and imagery communication to the Initial Brigade Combat Team (IBCT) Tactical Operations Center (TOC) and the Fires Effect Control Center (FECC) to meet IBCT requirements for

[182]Email msg with atch, subj: Bat Lab Input to 2000 Annual Command History, 20 Apr 01; Email msg with atch, subj: BL History, 1 Mar 02.

targeting, battlefield information, and fire support coordination.[183]

[183]Ibid.

The Striker II system consisted of the following components. The radar was the AN/PPS-5C Manportable Surveillance and Target Acquisition Radar (MSTAR). MSTAR was a combat-proven, battlefield radar system for detecting and locating moving targets and for adjusting artillery fire. It had the ability to detect a walking man out to seven kilometers, a single small vehicle up to fifteen kilometers, and one larger vehicle to a maximum of twenty-four kilometers. The target location error at twenty-two kilometers was fifty meters. The second-generation FLIR was a lightweight, self-contained, day/night thermal imaging device using an advanced sensor and a solid state thermoelectric cooler. It could operate in adverse battlefield scenarios, including light foliage, smoke, dust, and camouflage, at ranges up to ten kilometers. The second-generation FLIR would not only provide substantial increased range performance and decreased target acquisition time compared to first-generation FLIRs but also provide a major contribution to digitizing the battlefield through image transfer and automation.[184]

The Striker II would furnish added value to warfighters by giving the forward observer an enhanced capability to see the 3-D battlefield at a greater depth with more detail in day or night at ranges greater than forty kilometers. The increased capabilities supported the IBCT requirement for information dominance across a unilateral battlespace with real-time targeting data. It was important to note that the current observer capabilities were limited to daytime and good weather. This package of sensors supported a more proactive planning, execution, and attack of targets of opportunity. The Harris radio demonstrated that voice, digital, and imagery and digital messages could be communicated over a long distance. Meeting the needs of an IBCT force would require a change to high-frequency radio for the forward observer. Field artillery observers would need to provide fire support on a non-linear area of operations where an observer might be several miles from

[184]Email msg with atch, subj: BL History, 1 Mar 02.

the fire support command and control.[185]

GUARDFIST II Upgrade

[185]Ibid.

During 2000 and 2001, the Depth and Simultaneous Attack Battle Laboratory participated in the development of an Engineering Change Proposal for the Guard Unit Armory Device Full-Crew Interactive Simulation Training Field Artillery (GUARDFIST II). The GUARDFIST II training system were designed to provide a portable system for one student and one instructor, who were designated GUARDFIST II (1:1), and a classroom system for thirty students and one instructor, who were designated GUARDFIST II (1:30). Both systems had been successfully fielded and were performing their intended functions. As with many equipment types, operational experience and advanced technology helped define potential improvements. Upgrades to the GUARDFIST II would be documented in the form of an Engineering Change Proposal (ECP). The changes would be structured to provide a definable baseline for the existing GUARDFIST II (1:1) system and the enhanced GUARDFIST II (1:4) system.[186]

The system would consist of an upgraded GUARDFIST II (1:1) computer cabinet, a liquid crystal display (LCD) projector, portable projection screen, student and instructor binoculars, instructor color monitor, instructor track ball or mouse, printer, keyboard, speakers, transit cases, and associated cables. The enhanced GUARDFIST II (1:1) would utilize a state-of-the-art personal computer coupled with a LCD projector to present the GUARDFIST II scenes, targets, and related training information to the students on a large screen similar to the present GUARDFIST IIA classroom systems. The students would view the scene with binoculars and interface with the instructor and system using verbal commands or the digital interface device (DMD), forward entry device (FED), handheld terminal unit (HTU), or ruggedized handheld computer interface. The computer enhancements would provide the operating system software and CD-ROM capability for additional training opportunities in the form of existing CD-ROM based training courses and other graphic files that could furnish views of

[186]Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155.

previously unoccupied areas to be used for rehearsals.[187]

Forward Observer Exercise Simulation

[187]Ibid.

On 14 December 2000 the Depth and Simultaneous Attack Battle Laboratory staffed the Forward Observer Exercise Simulation (FOXS) operational requirements document and system training plan (STRAP) worldwide for comments. The FOXS would provide quality training for Military Occupational Speciality (MOS) 13F skill levels 1-3 as well as being a common task trainer for all soldiers. The system would be high-level architecture interoperable. FOXS could operate in a stand-alone mode to train one to thirty students in an institutional training environment or could operate at unit-level to train four forward observers without the use of live ammunition. FOXS would operate with the Fire Support Combined Arms Tactical Trainer (FSCATT) to train field artillery units in collective tasks in a combined arms environment. FOXS would be interoperable with other combined arms tactical trainers locally and via long-haul networks. FOXS would monitor performance and provide feedback in accordance with the Standard Army Action Review System. FOXS would also support institutional training at the U.S. Army Field Artillery School and sustainment training in all active, reserve, and National Guard units. The FOXS operational requirements document and STRAP were forwarded to U.S. Army Training and Doctrine Command headquarters for additional staffing on 28 March 2001.[188]

Battlefield Coordination Detachment Deep Operations and Coordination Cell Conference

During 28-30 March 2000, the Depth and Simultaneous Attack Battle Laboratory hosted the annual Battlefield Coordination Detachment (BCD)/Deep Operations Coordination Cell (DOCC) Conference in Snow Hall with attendees coming from numerous Army major commands and joint organizations. This annual conference provided an excellent venue for exchanging ideas and discussing issues that affected the performance and capabilities of the BCDs, and the 2000 conference was expanded to include corps- and army-level DOCCs. The emphasis of this year's conference was the application of local tactics, techniques, and procedures (TTP); user needs; joint fires; and digital integration.[189]

Attendees to the conference briefed their local TTPs

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[188]Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155.

[189]Ibid.

and joint exercise experience and made recommendations for changes in doctrine, materiel, and training. Army joint operations briefings were conducted by the Intelligence and Field Artillery Centers, including appropriate U.S. Army Training and Doctrine Command system manager representatives. Joint and other service representatives also conducted briefings on Army and joint specific subjects. The issues raised during the conference were provided to the appropriate organizations for review and action and would furnish the foundation for the 2001 conference. During the meeting, the Field Artillery Proponency Office announced that the tables of equipment changes would not take effect until Fiscal Year 2001.[190]

Battle Simulation Center

[190]Ibid.

The Battle Simulation Center provided Janus and BBS exercise support to the Captains Career Course, the Officer Basic Course, the Warrant Officer Advanced Course, the Warrant Officer Basic Course, the Basic Noncommissioned Officer Course, the Advanced Noncommissioned Officer Course, and the Battle Staff Noncommissioned Officer Course that was conducted in conjunction with the Sergeant Major's Academy. The Field Artillery Brigades of the III Armored Corps Artillery conducted simulated training events using Fire Sim XXI model, the Fire Support Simulations Tool (FSST), and the Digital Battlestaff Sustainment Trainer (DBST). Additionally, the center supported Army National Guard units from Oklahoma and New Hampshire using the DBST model. Research efforts conducted by the Depth and Simultaneous Attack Battle Laboratory were supported using the FSST and DBST models. Examples of the study efforts included the Future Fires Command and Control Concept Evaluation Program (CEP) and the Future Combat System CEP. The Battle Simulation Center furnished a total of 133 days of training support to the Field Artillery School and 49 training days to III Armored Corps Artillery. The Center provided training for 6,442 students and soldiers during Fiscal Year 2001.[191]

Army Joint Targeting Requirements Effort

Headquarters, Department of the Army, Office of the Deputy Chief of Staff for Operations (ODCSOPS) designated the Depth and Simultaneous Attack Battle Laboratory in Fiscal Year 2002 as the action agent in conducting the Army Joint Targeting Requirements effort. The Battle Laboratory would lead an integrated effort to develop an Army strategy for determining Army joint targeting requirements and recommendations for the digital technologies and systems needed to meet those requirements. The effort would focus at the army, corps, and division headquarters operating as a joint task force, functional, or service component headquarters. The team would have responsibility for developing positions on issues regarding Army joint targeting across all doctrine, training, leader development, organization, materiel, and soldier support areas. Office of the Deputy Chief of Staff for Programs (ODCSPRO) would work in partnership with the team and would represent the Army on Army joint targeting issues in the

[191]Email msg with atch, subj: BL History, 1 Mar 02, Doc III-155.

Department of the Army and joint forums where appropriate.[192]

[192]Email msg with atch, subj: BL History, 5 Mar 02, Doc III-156.

The Army Joint Targeting Requirements project would be accomplished over a two-year period and would involve two phases with a total of five key tasks. Phase one would involve completing tasks one through three. Phase two would synthesize the information gathered in phase one to examine the next level of detail, particularly the systems level architectures. Although phase two was unfunded, efforts were underway within the Department of the Army to identify a funding source to complete the project. The final outcome of phase two would provide ODCSOPS with information and supporting documentation required to determine Army joint targeting requirements and assist ODCSOPS in representing the Army at the joint requirements oversight council and in various memorandum of agreement discussions.[193]

NetFires

During 2001, NetFires technology demonstration continued developing a family of small, container-launched missiles to provide massive, responsive, precision firepower early in a conflict and was a key element supporting beyond-line-of-sight engagements for the Defense Advanced Research Projects Agency (DARPA)/Army Future Combat System program. NetFires would be designed for a low logistics burden and low life-cycle cost. A single C-130 could deliver a shipping container with 150 NetFires missiles that would be capable of engaging 150 separate targets up to 200 kilometers away. The system would be shipped in its launching container, would require no additional launch support equipment, and could be fired remotely from trucks or a variety of other platforms. NetFires rounds would be ready to fire immediately, resulting in a much higher potential rate of fire than would be possible with current howitzers or missile launchers. NetFires technologies would drive the Army's Future Combat System concept that envisioned the use of forces rapidly deployed by air and sea that would need to call upon precision, responsive firepower guided by beyond-

[193] Ibid.

the-horizon targeting.[194]

[194]Email msg with atch, subj: BL History, 5 Mar 02, Doc III-156.

NetFires concept definition began in 1998, and detailed design for both missile variants was completed in 2000. In 2001 the concept was in the component development phase with two major contractors, Lockheed-Martin and Raytheon, working in parallel. In 2001 a variable thrust motor, a key enabling technology, and a launcher were tested. Work continued to produce two seeker types (LADAR an UCIR) and to code software for automatic target recognition. Testing would continue to verify the operation of the variable thrust motor, which has successfully demonstrated maximum flight-duration-motor burn- times. Both missile contractors have successfully conducted their first boost test vehicle launches and were conducting seeker captive flight tests and extensive wind tunnel tests. Airdrop tests of the loitering attack munition would occur in the summer of 2002. Some of the capabilities of this system were modeled in the Army Advanced Warfighting Experiment 1999 and DARPA Future Combat System Experiment 2001. A high fidelity simulation model of NetFires would be part of the next Future Combat System Experiment in 2002.[195]

[195]Ibid.

LIST OF ACRONYMS

ABCS, Army Battlefield Control System
AC, Active Component/Assistant Commandant
ACAT, Acquisition Category
ACCP, Army Correspondence Course Program
ACH, Annual Command History
ACR, Armored Cavalry Regiment
ACTD, Advanced Concept Technology Demonstration
ADLP, Army Distance Learning Plan
ADT, Active Duty Training
AECP, Army Experimental Campaign Plan
AFATDS, Advanced Field Artillery Tactical Data System
AG, Adjutant General
AGR, Active Guard Reserve
AHR, Annual Historical Review
AIT, Advanced Individual Training
ALO, Authorized Level of Organization
ARARNG, Arkansas National Guard
ARNG, Army National Guard
ASARC, Army System Acquisition Review Council
ASAS, All-source Analysis System
ASI, Additional Skill Identifier
ATACMS, Army Tactical Missile System
ATACS, Advanced Target Acquisition Counterfire System
ATC, Artillery Training Center
ATCAS, Advanced Towed Cannon System
ATCCS, Army Tactical Command and Control System
ATDL, Army Training Digital Library

ATLAS, Advanced Technology Light Artillery System
ATLDP, Army Training and Leader Development Panel
ATTD, Advanced Technological Transition Demonstration
AUSA, Association of the United States Army
AWE, Advanced Warfighting Experiment
BASOPS, Base Operations
BAT, Brilliant Antiarmor Submunition
BAT P3I, BAT Preplanned Product Improvement
BCD, Battlefield Coordination Detachment
BCPT, Battle Command Post Training
BCS, Battery Computer System
BCT, Brigade Combat Team
BFIST, Bradley Fire Support Vehicle
BNCOC, Basic Noncommissioned Officer Course
BOLC, Basic Officer Leaders Course
BRAC, Base Realignment and Closure
C4I, Command, Control, Communications, Computers, and Intelligence
C4ISR, Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CABCC, Combined Arms Battle Command Course
CALC, Combined Arms Leader Course
CALL, Center for Army Lessons Learned
CAS3, Combined Arms Services Staff School
CATA, Combined Arms Training Activity
CATS, Combined Arms Training Strategy
CCC, Captains Career Course
CEP, Concept Evaluation Program/Concept Experimentation Program
CG, Commanding General
CGS, Command Ground Station
CGSC, Command and General Staff College
CMF, Career Management Field
COB, Command Operating Budget
COLT, Combat Observation Lasing Team
CONUS, Continental United States
CPT PME, Captain Professional Military Education
CRSS, Common Reconfigurable Sensor System
CSSG, Close Support Study Group
CTC, Combat Training Center
DA, Department of the Army
DAB, Defense Acquisition Board
DAC, Deputy Assistant Commandant/Department of the Army Civilian
DAIG, Department of the Army Inspector General
DARPA, Defense Advanced Research Projects Agency

DAWE, Division Advanced Warfighting Experiment
DBST, Digital Battlestaff Sustainment Training
DCA, Directorate of Community Activities
DCD, Directorate of Combat Developments
DCG, Deputy Commanding General
DCP, Directorate of Civilian Personnel
DCST, Deputy Chief of Staff for Training
DL, Distance Learning
DMD, Digital Message Device
DOC, Directorate of Contracting
DOCC, Deep Operations Coordination Cell
DOD, Department of Defense
DOIM, Directorate of Information Management
DOL, Directorate of Logistics
DPICM, Dual-Improved Conventional Munition
DPTM, Directorate of Plans, Training, and Mobilization
DPW, Directorate of Public Works
DRM, Directorate of Resource Management
DTAC, Digital Training Access Center
DTE, Directorate of Training and Evaluation
DTLOMS, Doctrine, Training, Leader Development, Organization, Materiel, and Soldiers
DTRA, Defense Threat Reduction Agency
EADSIM, Extended Air Defense Simulation
ECC, Effects Coordination Cell
ECP, Engineering Change Proposal
EDTM, Enlisted Distribution Target Model
EMD, Engineering and Manufacturing Development
ER, Extended Range
FA, Field Artillery
FACCC, Field Artillery Captains Career Course
FADAC, Field Artillery Digital Automated Computer
FAOAC, Field Artillery Officer Advance Course
FAOBC, Field Artillery Officer Basic Course
FAS, Field Artillery School
FAST, Future Army Schools Training
FATC, Field Artillery Training Center
FBCB2, Force Battle Command Brigade and Below
FCS, Future Combat System
FDC, Fire Direction Center
FDIC, Futures Development and Integration Center
FDS, Fire Direction System
FDSWS, Future Direction Support Weapon System
FDTE, Force Development Test and Evaluation
FECC, Fire Effects Coordination Cell
FED, Forward Entry Device

FF, Firefinder
F2C2, Future Fires Command Control
F2DSS, Future Fires Decision Support System
FIST, Fire Support Team
FISTV, Fire Support Vehicle
FLIR, Forward Looking Infrared
FLOT, Forward Line of Troops
FM, Field Manual
FORSCOM, U.S. Army Forces Command
FOTE, Follow-on Test and Evaluation
FOX, Forward Observer Exercise Simulation
FSC, Fire Support Center
FSCAOD, Fire Support and Combined Arms Operations Department
FSCATT, Fire Support Combined Arms Tactical Trainer
FSCATT-T, Fire Support Combined Arms Tactical Trainer-Towed
FSC3, Fire Support Command, Control, and Communications
FSE, Fire Support Element
FSO, Fire Support Officer
FSST, Fire Support Sustainment Tool
FSTS, Fire Support Training Strategy
FTX, Field Training Exercise
FY, Fiscal Year
GAO, General Accounting Office
GD, Gunnery Department
GIT, Gender-integrated Training
GLCM, Ground-Launched Cruise Missile
GLPS, Gun Laying Positioning System
GPS, Global Positioning System
GSM, Ground Station Module
GSU, Garrison Support Unit
GUARDFIST II, Guard Unit Armory Device-Full-Crew Interactive Simulation Trainer II
GVLLD, Ground/Vehicular Laser Locator Designator
HCT, Howitzer Crew Trainer
HIMARS, High Mobility Artillery Rocket System
HIPE, Howitzer Improvement Program and Enhancements
HMMWV, High Mobility Multipurpose Wheeled Vehicle
HQ, Headquarters
HQDA, Headquarters, Department of the Army
HSOT, Howitzer Strap on Trainer
HTU, Handheld Terminal Unit
HVAC, Heating, Ventilation, and Air Conditioning
IAV, Interim Armored Vehicle
IBCT, Initial/Interim Brigade Combat Team
IDT, Inactive Duty

IET, Initial Entry Training
IFCS, Improved Fire Control System
IFSAS, Interim Fire Support Automated System/Initial Fire Support Automated System
ILMS, Improved Launcher Mechanical System
IMI, Interactive Multimedia Instruction
INF, Intermediate-Range Nuclear Forces
IOC, Installation Operations Center
IOTE, Initial Operational Test and Evaluation
IPDS, Improved Positioning Determining System
IRR, Individual Ready Reserve
JCATS, Joint Conflict and Tactical Simulation
JCF AWE, Joint Contingency Force Advanced Warfighting Experiment
JRTC, Joint Readiness Training Center
JSTARS, Joint Surveillance Target Attack Radar System
LASIP, Light Artillery System Improvement Program
LCD, Liquid Crystal Display
LLDR, Lightweight Laser Designator Rangefinder
LRIP, Low-rate Initial Production
LW, Lightweight
MACS, Modular Artillery Charge System
MAPS, Modular Azimuth Positioning System
METL, Mission Essential Task List
MICOM, U.S. Army Missile Command
MLRS, Multiple-Launch Rocket System
MOA, Memorandum of Agreement
MOS, Military Occupational Specialty
MSTAR, MLRS Smart Tactical Rocket/Manportable Surveillance and Target Acquisition System
MTP, Mission Training Plan
MTT, Mobile Training Team
MTW, Major Theater War
MUSE, Multiple Unified Simulation Environment
NATO, North Atlantic Treaty Organization
NCO, Noncommissioned Officer
NCOA, Noncommissioned Officer Academy
NCOES, Noncommissioned Officer Education System
NEPA, National Environmental Policy Act
NET, New Equipment Training
NETD, New Equipment Training Detachment
NETT, New Equipment Training Team
NOTT, New Organization Training Team
NTC, National Training Center
OAC, Officer Advance Course
OBC, Officer Basic Course

OBCT, Officer Basic Course Training
OCONUS, Outside Continental United States
ODCSPRO, Office of the Deputy Chief of Staff for Programs
ODCSOPS, Office of the Deputy Chief of Staff for Operations
ODS, Operation Desert Shield/Operation Desert Storm
OES, Officer Education System
ORD, Operational Requirements Document
OSD, Office of the Secretary of Defense
OSIA, On-Site Inspection Agency
OSUT, One Station Unit Training
PCC, Precommand Course
PCS, Permanent Change of Station
PEO, Program Executive Officer
PERSCOM, Personnel Command
PI, Product Improvement
PM, Program Manager
POI, Program of Instruction
POM, Program Objective Memorandum
POV, Privately Owned Vehicle
P3I, Preplanned Product Improvement
PSYOP, Psychological Operations
RAM, Random Access Memory
RAMS, Rocket and Missile Systems
RC, Reserve Component
RDDI, Requirements Determination, Developments Integration
RFPI, Rapid Force Projection Initiative
RFPI ACTD, Rapid Force Projection Initiative Advanced Concept Technology Demonstration
RSTA, Reconnaissance, Surveillance, and Target Acquisition
RTI, Regional Training Institute
SADARM, Sense-and-Destroy Armor Munition
SASO, Stability and Support Operations
SATS, Standard Army Training System
SINCGARS, Single-channel Ground and Airborne Radio System
SME, Subject Matter Expert
SOSR, Suppression, Obscuration, Secure, and Reduce
SSC, Small-scale Contingency
SSM, Surface-to-Surface Missile
ST, Special Text
STOW, Synthetic Theater of War
STRAP, System Training Plan
TACFIRE, Tactical Fire Direction System
TAD, Towed Artillery Digitization
TADSS, Training Aids, Devices, Simulators and Simulations
TASS, Total Army School System/The Army School System
TATS, Total Army Training System

TCM, Trajectory Correctable Munition
TDA, Tables of Distribution and Allowances
TDY, Temporary Duty
TELS, Transporters, Erectors, and Launchers
TF, Task Force
TNET, Telecommunications Satellite Network
TOC, Tactical Operations Center
TPSO, Theater Precision Strike Operations
TRADOC, U.S. Army Training and Doctrine Command
TRAP, TRADOC Remedial Action Program
TSC, Training Service Center
TSM, TRADOC System Manager
TSP, Training Support Package
TSSAM, Tri-Service Stand-off Attack Missile
TTP, Tactics, Techniques, and Procedures
USACGSC, U.S. Army Command and General Staff College
USAFAC, U.S. Army Field Artillery Center
USAFACFS, U.S. Army Field Artillery Center and Fort Sill
USAFACS, U.S. Army Field Artillery Center and School
USAFAS, U.S. Army Field Artillery School
USAFATC, U.S. Army Field Artillery Training Center
USAG, U.S. Army Garrison
USAOTEC, U.S. Army Operational Test and Evaluation Command
USAR, U.S. Army Reserve
USFK, United States Forces, Korea
USMC, U.S. Marine Corps
VSEL, Vickers Shipbuilding and Engineering Limited
VTC, Video Training Conference
VTT, Video Teletraining
WIDD, Warfighting Integration and Development Directorate
WRAP, Warfighting Rapid Acquisition Program

APPENDIX ONE
STUDENT PRODUCTION FOR FISCAL YEAR 2001

Course	Initial Input	Graduates
FA Captains Career Course	365	364
FA Officer Basic Course	729	712
Basic Noncommissioned Officer Courses	486	468
Advanced Noncommissioned Officer Courses	422	416
Primary Leader Development Courses	785	744
Battle Staff Noncommissioned Officer Course	50	48

Total	2,837	2,752
U.S. Army Field Artillery Training Center (Basic Combat Training, One Station Unit Training, Advanced Individual Training, and U.S. Marines)	19,408	17,859
Grand Total for FY 2001	22,245	20,611

Source: Email msg with atch, subj: Production Statistics for FATC during FY2001, 28 Feb 02, Doc II-57; Email msg with atch, subj: Student Production Statistics for FAOBC and FACCC, 4 Mar 02, Doc II-58; Email msg with atch, subj: Production Statistical Report, 19 Mar 02, Doc II-59; Email msg with atch, subj: AIT Production Statistics, 20 Mar 02, Doc II-60.

APPENDIX TWO
KEY TRAINING COMMAND PERSONNEL

Commandant and Chief of Field Artillery:
MG Toney Stricklin, 11 Aug 99-23 Aug 01
MG Michael D. Maples, 23 Aug 01-present
Assistant Commandant U.S. Army Field Artillery School and Deputy Commanding General-Training:
BG William F. Engel, 5 Oct 99-11 Oct 01
BG David C. Ralston, 11 Oct 01-present
Chief of Staff, Training Command/Commander of the 30th FA Regiment:

COL Michael T. Madden, 16 Jun 00-present
Commander, U.S. Army Field Artillery Training Center:
COL T. O'Donnell, 20 Jun 00-present
Commandant, Noncommissioned Officers Academy:
CSM Joseph W. Stanley, 21 Jun 00-21 Jun 01
CSM C. McPherson, 21 Jun 01-present
Director, Futures Development Integration Center
COL Michael Cuff, 1 Oct 01-present
Director, Gunnery Department:
COL Thomas G. Waller, Jr., Nov 98-Jul 01
COL Stephen D. Mitchell, Jul 01-present
Director, Fire Support and Combined Arms Operations Department:
COL L.G. Swartz, Jul 00-present
Quality Assurance Office:
Dr Phyllis Robertson, 1 Oct 01-present
Note: On 1 October 2001 Training Command created the Futures Development Integration Center and the Quality Assurance Office. To create the Futures Development Integration Center, the Command abolished the Directorate of Combat Developments and merged it with some of the Warfighting Integration Development Directorate.

APPENDIX THREE
KEY USAFACFS PERSONNEL

Commanding General/Commandant of U.S. Army Field Artillery School/Chief of Field Artillery:
MG Toney Stricklin, 11 Aug 99-23 Aug 01
MG Michael D. Maples, 23 Aug 01-present
Chief of Staff:
COL David C. Ralston, 13 Jul 99-22 Mar 01
COL R.A. Cline, 22 Mar 01-present

Deputy Commanding General-National Guard:
BG D. McCall, Oct 98-Feb 01
COL David Greer, May 01-present
Garrison Commander:
COL R.A. Cline, Jun 99-Mar 01
COL G. Steuber, Apr 01-present
Director, Directorate of Community Activities:
Randy B. Cone, Jan 00-present
Director, Directorate of Civilian Personnel:
John D. Kerr, 29 Sep 96-present
Director, Directorate of Information Management:
Phyllis Hearn, Oct 00-Feb 02
Nick Bonacci, Feb 02-present
Director, Directorate of Logistics:
T.S. Haymend, 12 May 96-present
Director, Directorate of Contracting:
Bernie Valdez, Jan 97-present
Director, Directorate of Resource Management:
COL/Mr Robert L. Hanson, 8 Jul 96-present
Director, Directorate of Public Works
COL Gary W. Wright, Jun 98-Aug 01
COL Thomas Hodgini, Aug 01-present
Director, Directorate of Plans, Training, and Mobilization:
LTC M. Enneking, Aug 00-Aug 01
LTC M. Lingenfelter, Aug 01-present

Note: The Director of DRM was converted from a military slot to a civilian slot in FY 2001.

APPENDIX FOUR
FIELD ARTILLERY SCHOOL COMMANDANTS

CPT Dan T. Moore, l9 Jul l9ll-l5 Sep l9l4
LTC Edward F. McGlachlin, Jr., l5 Sep l9l4-26 Jun l9l6
School was closed 26 June 1916-27 July 1917
COL William J. Snow, 27 Jul l9l7-26 Sep l9l7
BG Adrian S. Fleming, 26 Sep l9l7-ll May l9l8

BG Laurin L. Lawson, ll May l9l8-l8 Dec l9l8
BG Dennis H. Currie, 24 Dec l9l8-l0 Jun l9l9
BG Edward T. Donnely, 30 Jun l9l9-9 Jul l9l9
MG Ernest Hinds, 25 Oct l9l9-l Jul l923
MG George LeR. Irwin, l Jul l923-l Apr l928
BG Dwight E. Aultman, 6 Apr l928-l2 Dec l929
BG William Cruikshank, 8 Feb l930-3l Jul l934
MG Henry W. Butner, l7 Sep l934-l0 Mar l936
BG Augustine McIntyre, 29 Jun l936-3l Jul l940
BG Donald C. Cubbison, l Aug l940-22 Dec l940
BG George R. Allin, 20 Jan 1941-30 Jun l942
BG Jesmond D. Balmer, l Jul l942-ll Jan l944
MG Orlando Ward, l2 Jan l944-30 Oct l944
MG Ralph McT Pennell, 3l Oct l944-30 Aug l945
MG Louis E. Hibbs, 30 Aug l945-4 Jun l946
MG Clift Andrus, 20 Jun l946-15 Apr l949
MG Joseph M. Swing, 9 Apr l949-3l Mar l950
MG Arthur M. Harper, 2 Apr l950-l6 Nov l953
MG Charles E. Hart, 4 Jan l954-28 May l954
MG Edward T. Williams, 8 Jul l954-23 Feb l956
MG Thomas E. de Shazo, l2 Mar 1956-31 Jan 1959
MG Verdi B. Barnes, l5 Feb 1959-25 Mar 196l
MG Lewis S. Griffing, 6 Apr 196l-3l Mar 1964
MG Harry H. Critz, l Apr 1964-l5 May 1967
MG Charles P. Brown, 5 Jul 1967-20 Feb 1970
MG Roderick Wetherill, 24 Feb 1970-3l May 1973
MG David E. Ott, l Jun 1973-24 Sep 1976
MG Donald R. Keith, 9 Oct 1976-2l Oct 1977
MG Jack N. Merritt, 22 Oct 1977-26 Jun 1980
MG Edward A. Dinges, 27 Jun 1980-27 Sep 1982
MG John S. Crosby, 28 Sep 1982-3 Jun 1985
MG Eugene S. Korpal, 4 Jun 1985-17 Aug 1987
MG Raphael J. Hallada, 20 Aug 1987-19 Jul 1991
MG Fred F. Marty, 19 Jul 1991-15 Jun 1993
MG John A. Dubia, 15 Jun 1993-7 Jun 1995
MG Randall L. Rigby 7 Jun 1995-7 Jun 1997
MG Leo J. Baxter, 7 Jun 1997-11 Aug 1999
MG Toney Stricklin, 11 Aug 1999-23 Aug 01
MG Michael D. Maples, 23 Aug 01-present

This list represents the most accurate information currently available at Fort Sill. Since World War I, the school commandant has also served as post commander of Fort Sill.

APPENDIX FIVE
CHIEFS OF FIELD ARTILLERY

*MG William J. Snow, 15 Feb 1918-19 Dec 1927
*MG Fred T. Austin, 20 Dec 1927-15 Feb 1930
*MG Harry G. Bishop, 10 Mar 1930-9 Mar 1934
*MG Upton Birnie, Jr., 10 Mar 1934-24 Mar 1938
*MG Robert M. Danford, 26 Mar 1938-9 Mar 1942
BG George R. Allin, 9 Mar 1942-31 Jun 1942
BG Jesmond D. Balmer, l Jul l942-ll Jan l944
MG Orlando Ward, l2 Jan l944-30 Oct l944
MG Ralph McT Pennell, 3l Oct l944-30 Aug l945
MG Louis E. Hibbs, 30 Aug l945-4 Jun l946
MG Clift Andrus, 20 Jun l946-15 Apr l949
MG Joseph M. Swing, 9 Apr l949-3l Mar l950
MG Arthur M. Harper, 2 Apr l950-l6 Nov l953
MG Charles E. Hart, 4 Jan l954-28 May l954
MG Edward T. Williams, 8 Jul l954-23 Feb l956
MG Thomas E. de Shazo, l2 Mar 1956-31 Jan 1959
MG Verdi B. Barnes, l5 Feb 1959-25 Mar 196l
MG Lewis S. Griffing, 6 Apr 196l-3l Mar 1964
MG Harry H. Critz, l Apr 1964-l5 May 1967
MG Charles P. Brown, 5 Jul 1967-20 Feb 1970
MG Roderick Wetherill, 24 Feb 1970-3l May 1973
MG David E. Ott, l Jun 1973-24 Sep 1976
MG Donald R. Keith, 9 Oct 1976-2l Oct 1977
MG Jack N. Merritt, 22 Oct 1977-26 Jun 1980
MG Edward A. Dinges, 27 Jun 1980-27 Sep 1982
*MG John S. Crosby, 28 Sep 1982-3 Jun 1985
*MG Eugene S. Korpal, 4 Jun 1985-17 Aug 1987
*MG Raphael J. Hallada, 20 Aug 1987-19 Jul 1991
*MG Fred F. Marty, 19 Jul 1991-15 Jun 1993
*MG John A. Dubia, 15 Jun 1993-7 Jun 1995
*MG Randall L. Rigby 7 Jun 1995-7 Jun 1997
*MG Leo J. Baxter, 7 Jun 1997-11 Aug 1999
*MG Toney Stricklin, 11 Aug 1999-23 Aug 01
*MG Michael D. Maples, 23 Aug 01-present

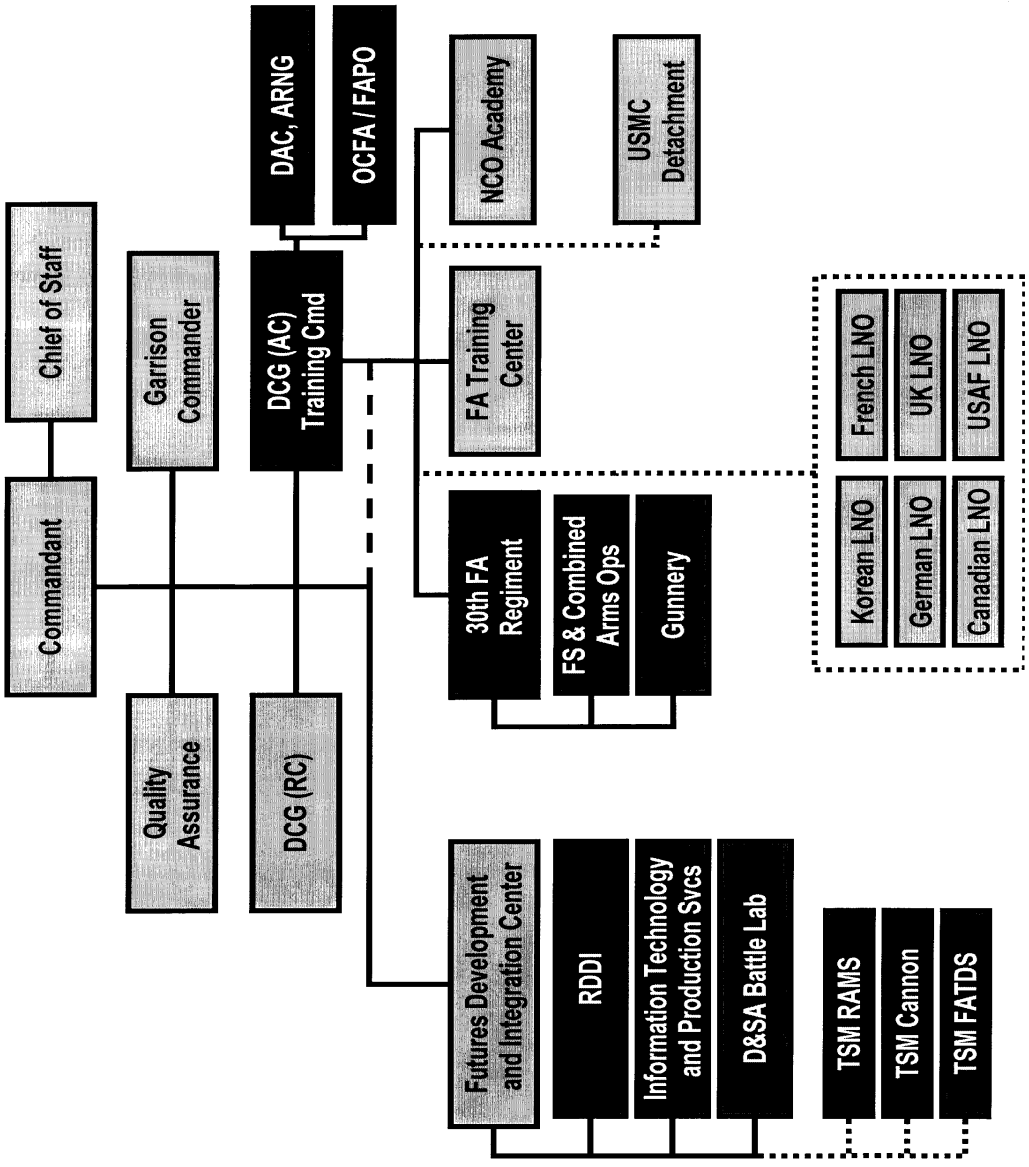
*Individuals with an asterisk by their name were officially recognized by the Department of War or Department of the Army as the Chief of Field Artillery. The War Department created the Office of the Chief of Field Artillery on 15 February 1918 to supervise the Field Artillery. On 9 March 1942 the War Department abolished the Office of the Chief of Field Artillery as part of a general wartime reorganization and placed the Field Artillery under the Army Ground Forces. When the War Department dissolved the Chief of Field Artillery on 9 March 1942, General Allin, who was serving as the Commandant of the Field Artillery

School, became the unofficial Chief of Field Artillery. He served as the unofficial Chief of Field Artillery and the Commandant of the Field Artillery School until 31 June 1942. In 1983 the Department of the Army reestablished the Chief of Field Artillery to oversee the development of Field Artillery tactics, doctrine, organization, equipment, and training. Although the War Department and later the Department of the Army did not recognize an official Chief of Field Artillery from 1942 through 1983, the Commandants of the U.S. Army Field Artillery School and its successors considered themselves to be the Chief of Field Artillery.

APPENDIX SIX

TRAINING COMMAND ORGANIZATION
1 OCTOBER 2001

Source: Email msg, subj: Training Command Organization, 9 Jan 02, Doc I-116.



APPENDIX SEVEN

LIST OF DOCUMENTS

CHAPTER ONE

1. Official Biography, MG Michael D. Maples
1a. "Maples New Commanding General," Fort Sill Cannoneer, 30 Aug 01, p. 1a.
1aa. Official Biography, BG David C. Ralston.
2. "Assistant Commandants Change," Field Artillery, Nov-Dec 01, p. 36.
3. Email msg with atch, subj: Training Command Organizational Chart, 9 Jan 02.
4. Email msg, subj: School Reorganization, 24 Jan 02.
5. Interview, Dastrup with Fred R. Rowzee, Operations Officer, Gunnery Department, 16 Jan 02.
6. Fact Sheet, subj: FDIC, 10 Jan 02.
7. "Futures Development Integrated with FDIC," Fort Sill Cannoneer, 1 Mar 01, p. 1a.
8. Email msg with atch, subj: Transformation of Training Command for Annual Command History, 19 Feb 02.
9. Staffing Paper with atch, subj: Accreditation of IET, Ldr Dev, and CTC Program 15 Jan 02.
10. Briefing, subj: Quality Assurance Pilot, 6 Feb 02.
11. Interview, Dastrup with Dr. P. Robertson, Dir, Quality Assurance Office, 8 Feb 02.
12. Email msg, subj: Budget for Annual Command History, 15 Mar 02.
13. Email msg with atch, subj: Budget for Annual Command History, 15 Mar 02.
14. Memorandum for Cdr, TRADOC, subj: Cdr's Statement - FY01 Appropriation TRADOC Budget Guidance, 29 Dec 00.
15. Email msg with atch, subj: 2001 Budget for Annual Command History, 5 Mar 02.
16. Email msg with atch, subj: Commander's Statement, 16 Jan 01.
17. Memorandum for CG, USAFACFS, subj: Exceptions to TRADOC Civilian Hire Freeze, Decision Paper, 2 Mar 01.
18. Email msg, subj: 2001 Budget for Annual Command History, 5 Mar 02.
19. Email msg, subj: Questions on Sill Interpretation of Funding Constraint Guidance, 28 Feb 01.
20. Email msg, subj: FY01 Funding Restrictions, 28 Feb 01.

21. Email msg with atch, subj: FY01 Funding Restrictions/Constraint, 23 Mar 01.

22. Email msg, subj: FY01 Funding Restrictions/Constraints, 27 Mar 01.

23. Email msg, subj: Funding Constraints, 26 Feb 01.

24. Email msg with atch, subj: FY01 Funding Constraint for April, 14 May 01.

25. Email msg, subj: Annual Command History, 5 Mar 02.

26. Briefing, subj: Fort Sill's FY01 Funding Assessment Relook, 13 Mar 01.

27. Briefing, subj: Fort Sill's FY01 and FY02 Funding Assessment, 8 May 01.

28. Memorandum for Cdr, TRADOC, subj: Funding Restriction Impacts, 9 Mar 01.

29. Interview, Dastrup with Barbara Milam, DRM, 8 Mar 02.

30. Email msg with atch, subj: Annual Command History, 5 Mar 02.

31. Memorandum for See Distribution, subj: FY02 TRADOC Budget Guidance, undated.

32. Email msg, subj: Annual Command History, 5 Mar 02.

33. Memorandum for See Distribution, subj: FY02 TRADOC Budget Guidance, 26 Oct 01.

34. Memorandum for Cdr, TRADOC, subj: Commander's Statement - FY02 TRADOC Budget Guidance, 19 Nov 01.

35. Briefing, subj: FY02 Budget Guidance, 15 Nov 01.

36. FY02 TRADOC Budget Guidance, 19 Nov 01.

37. Memorandum for Command Historian with atchs, subj: USAFACFS Annual Command History for CY2001, 29 Jan 02.

38. Email msg with atch, subj: Draft Sections on BRAC and A76 for Annual Command History, 4 Mar 02.

39. Fact Sheet, subj: BRAC Updated, 7 Jan 02.

40. Information Paper, subj: BRAC Closure/Realignment, 7 Jan 02.

41. FY99 BRAC Cleanup Plan and Abstract Analysis (Extract), Jul 00.

42. Memorandum for Command Historian with atchs, subj: USAFACFS Annual Command History for CY2001, 29 Jan 02.

43. Email msg with atch, subj: Draft Section on BRAC and A76 for Annual Command History, 4 Mar 02.

44. Fact Sheet, subj: INF Treaty, 2001.

45. Fact Sheet, subj: INF Eliminations and

Inspectable Sites, 2001.
46. Fact Sheet, subj: INF, The Beginning and End of an Era, 2001.
47. Fact Sheet, subj: INF Inspection Status, 2001.
48. Fact Sheet, subj: The Pershing Weapon System and its Elimination, 22 Jan 02.
49. Interview, Dastrup with LTC James W. Carney, Power Projection Division, DPTM, 8 Jan 02.
49a.Memorandum for Comand Historian, subj: Coordination of 2001 USAFACFS Annual Command History, 15 Mar 02.
50. Interview, Dastrup with LTC James W. Carney, Power Projection Division, DPTM, 8 Jan 02.
51. "Soldiers Home After Kuwait Deployment," Fort Sill Cannoneer, 1 Feb 01, p. 1a.
52. "Task Force Deploys to Kuwait," Fort Sill Cannoneer, 23 Aug 01, p. 1a.
53. "Army Will Soon Implement a New, Costly Force Protection Plan," Inside the Army, 7 Jan 02, p. 1.
54. Msg, subj: Increased Vigilance for Possible Acts of Terrorism, 301849Z May 01.
55. Briefing, subj: Force Protection O&O Status Update, 1 Nov 01.
56. TRADOC Regulation 525-13, Force Protection Program, 12 Dec 97.
57. Email msg, subj: Force Protection Plan, 9 Jan 02.
58. Briefing, subj: Force Protection, 1998.
59. Email msg with atch, subj: History Document, 26 Feb 02.
60. Email msg, subj: FW, Sources on Anti-Terrorism, 6 Dec 01.
61. "Exercise to Slow, Stop Traffic," Fort Sill Cannoneer, 19 Jul 01, p. 1a.
62. "Gate Access Controls Start Sep 1," Fort Sill Cannoneer, 26 Jul 01, p. 1a.
63. "Registration Stickers Required," Fort Sill Cannoneer, 26 Jul 01, p. 1a.
64. "Security Forces Trained, Tested," Fort Sill Cannoneer, 2 Aug 01, p. 1a.
65. "Gate Access Control Begins Oct 1," Fort Sill Cannoneer, 16 Aug 01, p. 1a.
66. "Special Unit Vital in 'Noble Eagle,'" ArmyLink News, 19 Sep 01.
67. Memorandum for CG, TRADOC, subj: Fort Sill Access Plan, 23 May 01.

68. "'Noble Eagle' Needs 35,000 Reservists," ArmyLink News, 20 Sep 01.
69. "Reserve Components to Guard America's Homeland," ArmyLink News, 25 Sep 01.
70. "D.C. National Guard First to be Mobilized," ArmyLink News, 1 Oct 01.
71. "Army Guard, Reserve Units Called Up," ArmyLink News, 4 Oct 01.
72. "Reservists Called to Active Duty," Fort Sill Cannoneer, 27 Sep 01, p. 1a.
73. "Reserve, Guard Units Called Up," Fort Sill Cannoneer, 4 Oct 01, p. 1a.
74. Interview, Dastrup with LTC James W. Carney, Plans and Exercise Division, DPTM, 8 Jan 02.
75. Briefing, subj: CG Update, 21 Dec 01.
76. Memorandum with atch for Command Historian, subj: Coordination of 2001 USAFACFS Annual Command History, 16 Mar 02.
77. Email msg, subj: OPORD, 22 Sep 01.
78. Email msg, subj: Immediate Force Protection Action, 11 Sep 01.
79. Email msg, subj: Key Personnel Location and Contact Info, 11 Sep 01.
80. Email msg, subj: Anti-Terrorism/Force Protection Guidance, 11 Sep 01.
81. Email msg, subj: Force Protection Working Group Meeting, 11 Sep 01.
82. Email msg, subj: Anti-Terrorism/Force Protection Guidance for 12 Sep 01.
83. Email msg, subj: Guidance for 12 Sep 01.
84. Email msg, subj: Guidance for 12 Sep 01.
85. Email msg, subj: Fort Sill SITREP, 11 Sep 01.
86. Email msg, subj: Guidance for Crisis Management Team Meeting, 12 Sep 01.
87. Email msg, subj: Daily Sitrep for Approval to Send to TRADOC, 13 Sep 01.
88. Briefing, subj: CG Update, undated.
89. Briefing, subj: CG Update, 22 Sep 01.
90. Briefing, subj: CG Update, 28 Sep 01.
91. Briefing, subj: CG Update, 15 Oct 01.
92. Briefing, subj: CG Update, 25 Nov 01.
93. Briefing, subj: CG Update, 27 Dec 01.
94. Briefing, subj: CG Update, 8 Oct 01.
95. Briefing, subj: CG Update, 28 Oct 01.
96. Briefing, subj: CG Update, 4 Nov 01.
97. Briefing, subj: CG Update, 11 Nov 01.

98. Briefing, subj: CG Update, 8 Dec 01.
99. Briefing, subj: CG Update, 15 Dec 01.
100. Email msg, subj: Sitrep, 2 Oct 01.
101. Permanent Order 345-20, 5th Army, 11 Dec 01. Permanent Order 274-2, 5th Army, 1 Oct 01.
102. Permanent Order 274-2, 5th Army, 1 Oct 01.
103. Email msg, subj: Activation of 5045th Garrison Support Unit, 28 Sep 01.
104. Email msg, subj: DA Mobilization Order 005-01 Operation Noble Eagle, 1 Oct 01.
105. "Texas NG Soldiers Activated Here," Fort Sill Cannoneer, 13 Dec 01, p. 8a.
106. Briefing, subj: Company A 3D Battalion, 141st Infantry, undated.
107. Sitrep, 4 Nov 01.
108. DOD News Release, 19 Dec 01, National Guard and Reserves Mobilized as of 19 Dec 01.
109. DOD News Release, 21 Nov 01, National Guard and Reserves Mobilized as of 21 Nov 01.
110. Memorandum for HQ TRADOC, subj: Fort Sill Force Protection Requirements, 21 Sep 01.
111. Memorandum for HQ TRADOC, subj: Draft TRADOC Force Protection Operational and Organizational Plan, 9 Nov 01.
112. HQ TRADOC, Draft Force Protection Operational and Organizational Plan Version 4.0 (Extract), 16 Nov 01.
113. Memorandum for TRADOC Installation Commanders, subj: Command Force Protection Planning Guidance, undated.
114. Email msg with atch, subj: Response to Draft O&O Plan, 9 Nov 01.
115. Email msg with atch, subj: Force Protection Plan, 9 Jan 02.
116. Email msg, subj: Training Command Organizational Chart, 9 Jan 02.

CHAPTER TWO

1. COL (Ret) John K. Anderson, "Fires Training XXI: A Training Strategy for the 21st Century," Field Artillery, Jan-Feb 02, pp. 8-11.
2. Fires Training XXI (Extract), 30 Sep 01.
3. "Distance Learning: Keeping Soldiers in Units," Field Artillery, Feb 02, p. 39.
4. Information Technology and Production Services Division, Futures Development Integration Center, USAFAS,

Distance Learning Homepage, 29 Jan 02.
5. Total Army Distance Learning Program, 29 Jan 02.
6. Fact Sheet, subj: USAFAS DL Schedule of Classes FY01, undated.
7. Email msg, subj: DL Input to Annual Command History, 18 Mar 02.
8. Email msg, subj: TASS 01 FA History, 23 Jan 02.
8a. Email msg, subj: TASS 01 FA History, 24 Jan 02.
9. Email msg with atch, subj: TASS, 26 Feb 02.
10. The Army Training and Leader Development Panel Officer Study, 25 May 01.
11. Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02.
12. Briefing, subj: Leader Development Transformation, 8 Nov 01.
13. Email msg, subj: FAOBC, 26 Feb 02.
14. Interview, Dastrup with MAJ Alvin Peterson, Chief, Cannon Division, Gunnery Department, 24 Jan 02.
15. "Army Acts on Training and Leaders Development Findings," U.S. Army News Release, 25 May 01.
16. "Survey Says 'Balance Army Needs with Army Beliefs,'" ArmyLink News, 25 May 01.
17. "Study Suggests Fixes for Officer Development," ArmyLink News, 25 May 01.
18. LTC Gordon K. Rogers, "Transforming Institutional Training and Leaders Development," Army AL&T, Nov-Dec 01, pp. 7-8.
19. Memorandum for CG, subj: Trip Report - TRADOC Leaders Development Campaign Plan Conference, 17 Oct 01.
20. Briefing, subj: BOLC Course Description, 11 Jan 02.
21. Briefing, subj: BOLC Phase II, 2001.
22. White Paper, subj: Transforming Technical Fire Control, undated.
23. Email msg, subj: FACCC, 26 Feb 02.
24. Interview, Dastrup with COL Stephen D. Mitchell, Dir, Gunnery Department, 3 Jan 02.
25. MAJ Stephen P. Wertz, "Restructuring Gunnery in the Captains Career Course," Field Artillery, Nov-Dec 01, pp. 38-39.
26. Briefing, subj: Leader Development Campaign Plan OES Workshop, 9-11 Jan 02.
27. Interview, Dastrup with CAPT Paul J. Payne, Canadian Army Exchange Officer, FSCAOD, 28 Jan 02.
28. Email msg with atch, subj: AFSB State of the Union, 25 Jan 02.

29. Interview, Dastrup with LTC Scott Dallam, Deputy Assistant Commandant for Army National Guard Office, 11 Jan 02.
30. Fact Sheet, subj: Information on FACCC-DL, Jan 02.
31. Email msg with atch, subj: FACCC-DL, 20 Feb 02.
32. Email msg, subj: PCC, 27 Feb 02.
33. Interview, Dastrup with SFC Threats, PCC Manager, FSCAOD, 1 Feb 02.
34. FA Precommand Course Training Schedule 02-02.
35. FA Precommand Course Synopsis, undated.
36. Information Paper, subj: New Numbering System for Fire Support and Field Artillery Manuals, 26 Jun 00.
37. Interview, Dastrup with LTC Joe Woods, Chief, Training and Doctrine Division, FDIC, 28 Feb 02.
38. FM 3.09 (Extract).
39. Email msg with atch, subj: FM 3.09, 4 Mar 02.
40. Interview, Dastrup with MAJ Charles H. Akin, MLRS NETT, 17 Jan 02.
41. Email msg, subj: MLRS NETT, 1 Mar 02.
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